

F i n a l D r a f t

**Delta Protection Commission
Economic Sustainability Plan
Framework Study**

Volume II:

Appendices and Attachments

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Introduction

This Framework Study represents the work completed in the first of a two-phase project to prepare an Economic Sustainability Plan for the Sacramento-San Joaquin Delta region under the direction of the Delta Protection Commission. The objective of this Framework Study is to establish a basic understanding of the Delta economy and to identify the key factors affecting the Delta economy which, if altered in the future, will have an impact on the Delta economy. The second phase of the project will be initiated in early 2011, and will culminate in July 2011 when the Delta Protection Commission adopts the Economic Sustainability Plan for the Sacramento-San Joaquin Delta.

The Framework Study is divided into two volumes. This first volume presents the framework for the preparation of the Economic Sustainability Plan. Key components of this volume include a section that provides an overview of the Delta economy and a section that identifies the key factors affecting the Delta economy, which must be addressed in developing the Economic Sustainability Plan. This document, Volume II, contains supporting background information and documentation of the Phase 1 study process.

Appendix A: Public Participation in Development of the Framework Study

Phase 1 of the Economic Sustainability Plan (ESP) project has included substantial work on identifying key Delta contacts and stakeholders and conducting targeted as well as general public outreach to engage the Delta community in the preparation of the framework study.

The following is a summary of the public outreach process conducted as part of the Framework Study and the activities are listed chronologically. Further, the consultant team has compiled a public outreach reference binder that includes copies of meeting notices, invitee and attendee lists, meeting presentation materials, and meeting notes. This will be provided to Delta Protection Commission (DPC) staff and will be available at the DPC office at the conclusion of the study, to serve as reference for Phase 2 of the ESP project and for other DPC efforts. In addition, the consultant team will provide DPC staff with a copy of the outreach database compiled and used in conjunction with the outreach efforts for Phase 1.

Information Database and Notification

The consultant team spent considerable time updating and expanding the outreach database prior to the first notifications on the Framework Study. The updated database now contains the email addresses for nearly 750 interested parties. Although the primary forms of notification were electronic notices, stakeholder addresses have also been gathered to build the database. For public meetings, hard copy notices were also posted in key locations throughout the five county area.

DPC ESP Committee Meetings

During the course of Phase 1, the consultant team and DPC staff met approximately monthly with the Economic Sustainability Committee at the Committee's regularly noticed public meetings. At the meetings, the consultant team and DPC staff provided updates to the committee and the public on the ESP project, received direction from the committee, and received comments from other interested parties in attendance.

DPC Meetings

During Phase 1, the consultant team and DPC staff also provided updates to the full DPC at their regularly scheduled public meetings, this included the circulation of support materials that were available to the public.

Public Scoping Meetings – Round One Outreach Meetings

The consultant team collaborated with DPC staff to plan and host a series of five public scoping meetings at locations throughout the Delta in mid-September 2010; outreach included public postings, posting on DPC web site, and electronic notices to nearly 750 key stakeholders and community members. Nearly 100 people attended these meetings that took place during a variety of times, including a meeting on the weekend and one during the day (weekday).

Community input was incorporated into the Draft Framework Study, in particular the Key Factors Affecting the Economy (by sector). Summaries from the meetings have been posted on-line.

In addition, DPC Commissioner Mary Piepho provided an interview with Capital Public Radio regarding the ESP project and the public scoping meetings, which aired two times during the timeframe that the public scoping meetings were held

Stakeholder Focus Group Sessions

The consultant team organized a total of eight focus group interview sessions, meeting with 32 individuals with expertise in specific topic areas relating to the Delta economy. These groups included:

- Agriculture – North Delta
- Agriculture – South Delta
- Water and Levee Infrastructure
- Environmental/Habitat
- Recreation
- Tourism/Lodging
- Community Representatives
- General Economic Development

The information collected through the focus group meetings was very valuable to the scoping process and assisted in better understanding economic data collected and input received in public meetings during Phase 1 of this study.

Key Informant Interviews

The consultant team requested individual interviews with the DPC's Economic Sustainability Committee members in order to ensure that the consultant team understood each of the committee members' economic sustainability concerns and ideas.

Because of the tight timeframe for the Phase 1 work, it was not possible to accommodate the schedules of all persons who were invited to the focus group meetings. As follow-up to the focus group meetings, the consultant team requested one-on-one meetings with more than a dozen stakeholders and conducted approximately 10 additional individual interviews with key informants in order to collect supplementary information pertaining to Delta economic sustainability.

Draft Framework Presentations - Round Two Outreach Meetings

The consultant team and DPC staff scheduled and hosted a second round of public meetings in November 2010 to present the Draft Framework Study documents and to solicit public comments on the materials under development. Approximately 75 individuals attended these meetings. These meetings were conducted in four different locations throughout the Delta, with one meeting being offered during the workday. Summaries from the meetings have been posted on-line, including a video of a second round meeting in Clarksburg on November 16, 2010.

Community and Workshop Participant Surveys

As a key component of the second round of community meetings the consultant team prepared a survey/worksheet as a companion piece to both the presentation materials and the Draft Framework Outline. The survey was also posted on the DPC website for a two week period, primarily targeting those who were unable to attend the second round of community meetings.

About 70 people participated in the survey and results have been posted on-line. Half the participants agreed with the Framework as outlined, while the other half of the respondents agreed with most of listed factors but offered additional input on Delta assets, economic drivers and key factors affecting the economy. Finally, participants were asked to prioritize plan components. The highest ranked factors have been highlighted in the summary report and noted in the overall planning effort.

Recommended Outreach Program for Phase 2

Following are preliminary recommendations for public outreach efforts to be conducted in Phase 2 of the ESP project, from January through June of 2011. These recommendations are based on the experience from the Phase 1 public participation to date, and will be refined based on additional observations through completion of the Phase 1 outreach.

Introduction and Overview

The following outreach recommendations for the ESP project have been compiled after a successful framework outreach program. Task descriptions for key program components are outlined below. Note: additional outreach tasks have been added to Phase 2 of the project.

Outreach Program Components

Review of Existing Materials

- Review of all outreach materials produced (to understand requirements)
- Understanding of publication/notification process (printing, etc.)

Master Database

- Master list revisions (for notification and general communications); initial contact list will be provided by DPC from Phase 1 work
- Key stakeholder identification. Initial list will be provided by DPC from Phase 1 work

Notifications

- All notice preparation and circulation (14-21 days prior to meetings)
- Email notifications for all scheduled community meetings
- Consideration of \standard mail notification for community meetings only (list not provided)
- Posting of meeting fliers (at 15 key community locations; map to be provided by DPC)

Key Stakeholder Outreach Meetings

- Confirmation of stakeholders (DPC to approve)

General Public Outreach Meetings

- Dates (TBD)
- Notification (both electronic and standard mail)
- Meeting locations (proposed)
 - North Delta - Clarksburg (Clarksburg Middle School)
 - South Delta – Rio Vista (City Hall)
 - Central Delta – Walnut Grove (Jean Harvie Center)
 - South/Southeast Delta – West Lodi/Stockton (Manlio Silva Elementary School)
- Meeting format (TBD)
- Workshop summaries for each meeting (electronic only – posted on DPC website)

Outreach Summary Report (to include)

- Program overview
- Notices (copies of, and information on, each notice)
- Notification list
- Meeting and Issue Summaries (for each Public meeting, summaries from stakeholder sessions)

- Conclusions and key findings

Additional Outreach Program Details

- Photos, notes and sign in sheets produced by outreach team (meetings, etc.)
- Additional event support will include food, beverages, printed materials (agendas), etc.
- Communications (staff and committee):
 - Meeting preparation (for ESP Committee and public meetings)
 - Master calendar prepared (for ESP Committee and Staff)
 - Reminder notices to be circulated
 - Media support (TBD by DPC Management and Staff)
- One focus group (minimum) shall include Spanish speaking community members/stakeholders and a translator shall be provided
- Outreach expenses must include food and beverages for community meetings. Mailing costs shall be negotiated with DPC by contractor (for standard mail notice only – round one)
- Monthly reports to the DPC and ESP Committee are required

Appendix B: Baseline Data on the Delta Economy

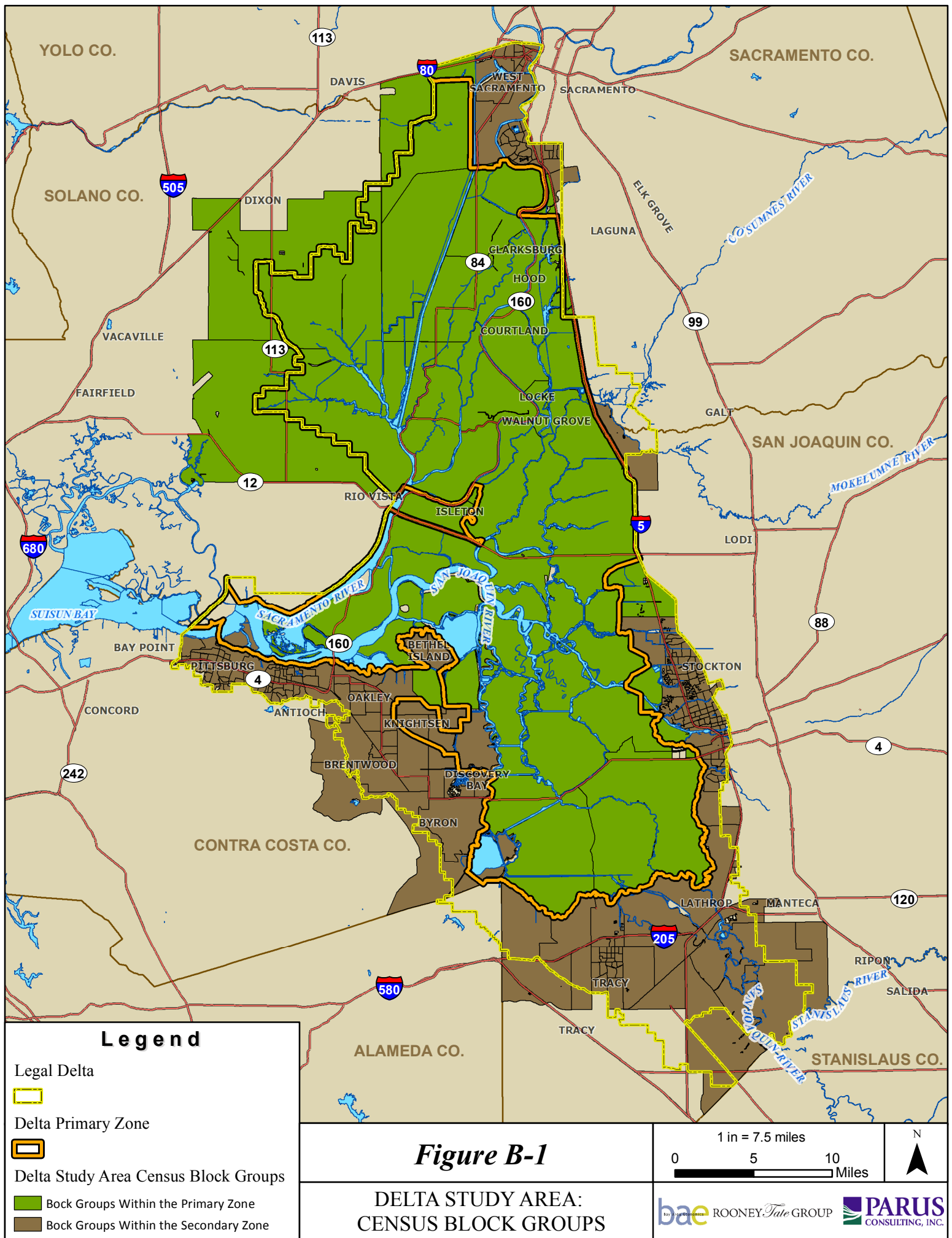
To better understand the sustainability of the Delta economy, it is necessary to establish baseline economic conditions. Then, it will be possible to monitor the Delta's economy as various indicators change over time. In addition, baseline conditions provide a starting place to evaluate the potential impacts of various changes in the Delta environment (both natural and man-made) on the Delta economy.

This Appendix presents available data compiled as part of the Phase 1 Framework Study. In addition, it includes discussion of some of the limitations of the data currently available, as well as recommendations for additional data collection efforts that could be incorporated into Phase 2 of the Economic Sustainability Plan project.

Delta Study Area Definitions for Data Collection

The Legal Delta encompasses portions of six counties and all or portions of more than a dozen cities as well as numerous unincorporated communities. Consequently, the boundaries of the Delta do not neatly align with existing Census boundaries, presenting a methodological challenge for analysts attempting to describe the Delta population and economy. For purposes of this Economic Sustainability Framework Study, study areas for the Primary Zone, the Secondary Zone, and the Legal Delta have been defined based on the sets of Census Block Groups that most closely align with the actual boundaries of the Delta. Census Block Groups provide the advantage of being relatively small so as to allow relatively close matching to actual boundaries of the Legal Delta, while also providing access to a rich set of population, housing, and employment data. Figure B-1 shows the Delta Block Groups Study Area, while Attachment 1 provides a list of Block Groups associated with the Primary and Secondary Zones.

Use of larger geographies (i.e., Census Tracts) and/or ZIP Codes to define the study areas would result in capturing substantial portions of adjacent communities not actually encompassed by the boundaries of the Legal Delta and would lead to substantial over counting of population and employment within the Legal Delta.



Demographic and Economic Trends

The following section discusses various socioeconomic trends and their impact on the Legal Delta and surrounding areas. This section draws on data collected from a variety of official government sources, including the decennial US Census, the California Department of Finance Population and Housing Estimates and Projections, the US Census Bureau's Zip Business Patterns database, the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW), and the US Census Bureau's Local Employment Dynamics (LED) data set. In addition, this section refers to a number of previously published studies on the Delta region.

Regional Population Growth Trends

While much of the Delta consists of agricultural and open space uses, the Secondary Zone of the Delta and surrounding areas are among the fastest growing in California. Key trends include the following:

- During each of the last two decades, the cities whose boundaries touch on the Legal Delta have grown by 24 percent.
- From 2000 to 2010, this rate of growth was twice that of the surrounding six-county region, suggesting that the Delta is absorbing a disproportionate amount of growth in those counties within the Secondary Zone.
- Not only is the Delta growing much more rapidly than the rest of the surrounding counties, it is growing much more rapidly than the state as a whole. Between 2000 and 2010, the state grew by 15 percent.

The downturn in the housing market has been particularly acute in many Delta communities, and growth trends in the Delta-region are anticipated to slow over the short-term compared to levels experienced during the previous decade. Nonetheless, over the long-term, areas surrounding the Delta are anticipated to remain some of the fastest growing in California. Long-term growth projections indicate that the six Delta counties will grow by more than 130 percent or 4.4 million residents between 2000 and 2050, to a total population of approximately 7.7 million residents.¹ This increase in population will continue to be driven by factors such as the region's proximity to major urban centers including Sacramento, Stockton, and the Bay Area, as well as competitive home prices vis-à-vis more urbanized areas of the state. This urbanization is expected to occur in the Secondary Zone, consequently adding to the stress on the Primary Zone.

¹ California Department of Finance. *Population Projections for California and Its Counties 2000-2050*. July 2007. Accessed October 2010: <http://www.dof.ca.gov/research/demographic/reports/projections/p-1/>

Table B-1: Population Growth Trends, Delta Cities and Counties, 1990-2010

	Population			% Change	
	1990	2000	2010 (est.)	1990-2000	2000-2010
Cities (a)					
Antioch	62,195	90,532	104,306	46%	15%
Brentwood	7,563	23,302	49,594	208%	113%
Elk Grove	17,483	59,984	74,953	243%	25%
Isleton	833	828	764	-1%	-8%
Lathrop	6,841	10,445	17,307	53%	66%
Lodi	51,874	56,999	61,679	10%	8%
Manteca	40,773	49,258	66,383	21%	35%
Oakley	18,374	25,619	33,904	39%	32%
Pittsburg	47,564	56,769	66,196	19%	17%
Rio Vista	3,316	4,571	7,809	38%	71%
Sacramento	369,365	407,018	477,071	10%	17%
Stockton	210,943	243,771	295,404	16%	21%
Tracy	33,558	56,929	84,170	70%	48%
West Sacramento	28,898	31,615	50,221	9%	59%
Total	899,580	1,117,640	1,389,761	24%	24%
Counties					
Alameda	1,279,182	1,443,741	1,518,031	13%	5%
Contra Costa	803,732	948,816	1,053,103	18%	11%
Sacramento	1,041,219	1,223,499	1,432,253	18%	17%
San Joaquin	480,628	563,598	692,979	17%	23%
Solano	340,421	394,542	418,180	16%	6%
Yolo	141,092	168,660	202,714	20%	20%
Total	4,086,274	4,742,856	5,317,260	16%	12%

Notes:

(a) Includes cities located either wholly or partially within the boundaries of the Legal Delta.

Sources: Claritas, 2010; BAE, 2010.

Delta Population and Housing

Over the years, population estimates provided for the Delta have varied somewhat depending on the estimation methodology used and how the Delta geography has been defined. A California Department of Water Resources study places the 2000 population of

the Legal Delta-Suisun Marsh at approximately 470,000 residents,² while another commonly cited figure, published by the Delta Vision Foundation, places the 2000 population of the Delta at approximately 515,000 residents.³

Table B-2: Population and Housing Unit Estimates, 2000-2015

	2000	2010	2015	Avg. Annual % Change	
				2000-2010	2010-2015
Primary Zone (a)					
Population	17,129	19,399	20,361	1.3%	1.0%
Households	5,837	6,836	7,294	1.6%	1.3%
Housing Units	6,757	8,368	8,868	2.2%	1.2%
Secondary Zone (b)					
Population	459,579	603,772	665,784	2.8%	2.0%
Households	154,738	198,406	217,210	2.5%	1.8%
Housing Units	161,160	210,277	230,307	2.7%	1.8%
Legal Delta (c)					
Population	476,708	623,171	686,145	2.7%	1.9%
Households	160,575	205,242	224,504	2.5%	1.8%
Housing Units	167,917	218,645	239,175	2.7%	1.8%

Notes:

(a) Figures represent the aggregate information for all block groups either wholly or substantially contained within the Primary Zone of the Legal Delta.

(b) Figures represent the aggregate information for those block groups either wholly or substantially contained within the boundaries of the Legal Delta, but not wholly or substantially contained within the boundaries of the Primary Zone.

(c) Figures represent the aggregate information for all block groups either wholly or substantially contained within the boundaries of the Legal Delta.

(d) 5-County Delta Region consists of Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties.

Sources: Claritas, 2010; BAE, 2010.

Based on Block Group level data from the US Census, the Delta Block Group Study Area had a population of approximately 477,000 residents in 2000, including approximately

² California Department of Water Resources. *Status and Trends of Delta Suisun Services*. March 2007. Accessed September 2010: http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Status_and_Trends-PRD.pdf

³ Delta Vision Foundation. *Sacramento San Joaquin Delta Facts*. Accessed September 2010: http://www.deltavisionfoundation.org/Sacto-SanJoaquin_fact.pdf

17,000 residents who lived in the Primary Zone (3.6 percent of the all residents of the Delta) and 460,000 residents who lived in the Secondary Zone (96.4 percent of all residents of the Delta). The 2010 population of the Delta is estimated to have grown by more than 30 percent since 2000, to 623,000 residents, including 19,000 who live in the Primary Zone and 604,000 who live in the Secondary Zone.

Delta Economic Activity

Employment by Sector

The Delta Block Group Study Area, which approximates the Primary and Secondary Zones combined, is home to approximately 146,000 jobs, as shown in Table B-3.

- The number of jobs in the Delta has grown at an average annual rate of 1.3 percent per year in recent years, approximately half the rate of employment growth during the previous decade (2.7 percent annually).
- The sectors with the largest numbers of employees are Education Services, Retail Trade, and Health Care & Social Assistance.
- Agriculture accounts for 4.4 percent of jobs in the Delta.

The **Primary Zone** is home to approximately 7,400 jobs as shown in Table B-4.

- This number of jobs accounts for 5 percent of total jobs in the Delta.
- By far, the sector with the largest number of workers in the Primary Zone is agriculture, accounting for approximately 2,800 jobs, or 38 percent of the Primary Zone total.
- The other key sector is Accommodation and Food Service (approximately 1,700 jobs or 23 percent of the Primary Zone total).

The **Secondary Zone** is home to approximately 139,000 jobs as shown in Table B-5.

- This Secondary Zone contains 95 percent of total jobs in the Delta.
- The sector with the largest number of jobs in the Secondary Zone is Education Services (19,000 jobs or 14 percent of the Secondary Zone).
- Other service-related sectors, including Retail and Health Care, also employ significant numbers of individuals.
- In addition, the Secondary Zone includes a significant manufacturing sector (10,000 jobs).

Table B-3: Employment within the Legal Delta by Sector, 2002-2008 (a) (b)

Industry Sector (c)	Jobs		% of Total (2008)
	2002	2008	
Agriculture, Forestry, Fishing & Hunting	8,691	6,370	4.4%
Mining, Quarrying, & Oil/Gas Extraction	424	42	0.0%
Utilities	973	908	0.6%
Construction	9,849	9,825	6.7%
Manufacturing	10,838	10,780	7.4%
Wholesale Trade	6,047	8,203	5.6%
Retail Trade	16,412	17,727	12.1%
Transportation & Warehousing	10,152	8,526	5.8%
Information	766	1,188	0.8%
Finance & Insurance	3,628	3,461	2.4%
Real Estate, Rental & Leasing	2,426	2,549	1.7%
Professional, Scientific & Technical Services	6,854	4,961	3.4%
Management of Companies & Enterprises	2,733	1,361	0.9%
Administration, Support, Waste Management & Remediation	7,580	8,569	5.9%
Educational Services	16,979	19,160	13.1%
Health Care & Social Assistance	11,270	14,337	9.8%
Arts, Entertainment & Recreation	2,349	2,317	1.6%
Accommodation & Food Services	10,282	14,130	9.6%
Other Services (excluding Public Administration)	5,224	8,764	6.0%
Public Administration	2,163	3,255	2.2%
Total	135,640	146,433	100.0%
Average Annual % Change	1.3%		

Notes:

(a) 2002 and 2008 represent the earliest and most recent time periods available in the Local Employment Dynamics dataset.

(b) Figures represent the aggregate information for all block groups either wholly or substantially contained within the boundaries of the Legal Delta.

(c) Sectors defined according to the North American Industrial Classification System (NAICS) at the 2-digit coding level.

Sources: U.S. Census Bureau, Local Employment Dynamics OnTheMap Version 4, 2008; BAE, 2010.

Table B-4: Employment within the Primary Zone by Sector, 2002-2008 (a) (b)

Industry Sector (c)	Jobs	
	2002	2008
Agriculture, Forestry, Fishing & Hunting	4,654	2,831
Mining, Quarrying, & Oil/Gas Extraction	4	3
Utilities	20	31
Construction	252	276
Manufacturing	244	375
Wholesale Trade	151	192
Retail Trade	245	211
Transportation & Warehousing	93	159
Information	52	74
Finance & Insurance	45	35
Real Estate, Rental & Leasing	131	134
Professional, Scientific & Technical Services	118	133
Management of Companies & Enterprises	3	0
Administration, Support, Waste Management & Remediation	51	211
Educational Services	227	234
Health Care & Social Assistance	58	80
Arts, Entertainment & Recreation	280	249
Accommodation & Food Services	365	1,687
Other Services (excluding Public Administration)	228	442
Public Administration	40	73
Total	7,261	7,430
Average Annual % Change	0.4%	

Notes:

(a) 2002 and 2008 represent the earliest and most recent time periods available in the Local Employment Dynamics dataset.

(b) Figures represent the aggregate information for all block groups either wholly or substantially contained within the Primary Zone of the Legal Delta.

(c) Sectors defined according to the North American Industrial Classification System (NAICS) at the 2-digit coding level.

Sources: U.S. Census Bureau, Local Employment Dynamics OnTheMap Version 4, 2008; BAE, 2010.

Table B-5: Employment within the Secondary Zone by Sector, 2002-2008 (a) (b)

Industry Sector (c)	Jobs		% of Zone (2008)
	2002	2008	
Agriculture, Forestry, Fishing & Hunting	4,037	3,539	2.5%
Mining, Quarrying, & Oil/Gas Extraction	420	39	0.0%
Utilities	953	877	0.6%
Construction	9,597	9,549	6.9%
Manufacturing	10,594	10,405	7.5%
Wholesale Trade	5,896	8,011	5.8%
Retail Trade	16,167	17,516	12.6%
Transportation & Warehousing	10,059	8,367	6.0%
Information	714	1,114	0.8%
Finance & Insurance	3,583	3,426	2.5%
Real Estate, Rental & Leasing	2,295	2,415	1.7%
Professional, Scientific & Technical Services	6,736	4,828	3.5%
Management of Companies & Enterprises	2,730	1,361	1.0%
Administration, Support, Waste Management & Remediation	7,529	8,358	6.0%
Educational Services	16,752	18,926	13.6%
Health Care & Social Assistance	11,212	14,257	10.3%
Arts, Entertainment & Recreation	2,069	2,068	1.5%
Accommodation & Food Services	9,917	12,443	9.0%
Other Services (excluding Public Administration)	4,996	8,322	6.0%
Public Administration	2,123	3,182	2.3%
Total	128,379	139,003	100.0%
Average Annual % Change	1.3%		

Notes:

(a) 2002 and 2008 represent the earliest and most recent time periods available in the Local Employment Dynamics dataset.

(b) Figures represent the aggregate information for those block groups either wholly or substantially contained within the boundaries of the Legal Delta, but not wholly or substantially boundaries of the Primary Zone.

(c) Sectors defined according to the North American Industrial Classification System (NAICS) at the 2-digit coding level.

Sources: U.S. Census Bureau, Local Employment Dynamics OnTheMap Version 4, 2008; BAE, 2010.

The data in Tables B-3 to B-5 are from the Local Employment Dynamics (LED) program, a partnership of state labor market information agencies and the U.S. Census Bureau. This program provides online access to the Quarterly Census of Employment and Wages (QCEW) data for geographies as small as Census Block Groups. See Attachment 1 for a list of Block Groups that constitute the Delta Block Group Study Areas for the Primary Zone, Secondary Zone, and Legal Delta.

While QCEW data are generally considered to be a robust data set for employment statistics, these data do undercount within certain sectors. In particular, QCEW data do not include members of the armed forces, the self-employed, and certain non-profit, railroad, and local government workers.⁴ Overall, however, the Bureau of Labor Statistics indicates that the QCEW data set provides an accurate Census of more than 92 percent of all jobs.⁵ Consequently, an estimate of total employment in the Legal Delta Block Group Study Area in the range of 146,000 in 2008 provides a reasonable approximation. Moreover, this estimate is generally consistent with data derived from the US Census Bureau's ZIP Code Business Patterns database, if one allows for differing geographies that distinguish the two data sets. According to this database, within the set of ZIP Codes that most closely match the boundaries of the Legal Delta, there were approximately 118,000 jobs in 1994, 153,000 in 2002, and 187,000 in 2008. Because the ZIP Codes which encompass the Delta also encompass significant areas outside the Delta, the estimates from the ZIP Code Business Patterns database overstate total employment in the Legal Delta.

Data from LED indicate that overall employment within the Legal Delta grew at a more rapid pace (1.3 percent annually) between 2002 and 2008 than that of the larger 5-county region where employment grew at an annual rate of 0.9 percent annually. It is a concern that the number of jobs in the Agriculture, Forestry, Fishing & Hunting sector declined in both the Primary Zone and the Secondary Zone between 2002 and 2008; however, it should be noted that this is part of a trend within the larger 5-county region, where employment in this sector declined approximately 15 percent between 2002 and 2008. This may reflect a continuing trend towards increased mechanization, and it does not necessarily reflect a trend towards decreased agricultural production value.

In general, there has been little written about the overall makeup and character of the Delta economy in terms of employment levels or total economic output. One exception is a 1998 Study that estimated the economic impact of recreational boating and fishing in the Delta.⁶ Defining the Delta economy according to a set of ZIP Codes that encompass the Legal Delta and surrounding areas, this study found that economic output and employment in the Delta totaled \$21.2 billion and 249,000 jobs, respectively, in 1994.⁷ This estimate appears

⁴ Depending on State law, QCEW data can lead to systematic undercounting of agricultural employment. Within California most agricultural production workers are covered by the QCEW data as state law requires that agricultural employers with one or more employees and wages in excess of \$100 per quarter must participate in the Unemployment Insurance program and, thus, the QCEW. See: <http://workforcesecurity.doleta.gov/unemploy/pdf/uilawcompar/2010/coverage.pdf>

⁵ Bureau of Labor Statistics. *Frequently Asked Questions RE: QCEW*. Accessed September 2010: <http://www.bls.gov/cew/peoplebox.htm#4>

⁶ George Goldman, et. al. *Economic Impact of Recreation Boating and Fishing in the Delta*. November 1998. Accessed September 2010: http://www.delta.ca.gov/recreation_economic.htm

⁷ George Goldman, et. al. *Economic Impact of Recreation Boating and Fishing in the Delta*. November 1998. Accessed September 2010: http://www.delta.ca.gov/recreation_economic.htm

to have substantially overstated employment in the Legal Delta, as it likely includes jobs within an overly broad geography. More current and/or precise information on the overall output of the Delta economy is not available, but the fact that the study seems to have overstated employment implies that it overstated economic output as well.

The consultant team identified only one other estimate of the size of the Delta economy. A report drafted by the URS Corporation for the California Department of Water Resources estimated that business sales within the Delta Protected Area totaled \$34.1 billion in 2005. However, the Protected Area is defined as the land that is protected from flooding by Delta levees, which exceeds the boundaries of the Legal Delta in certain locations that have a major impact on the sales figures. For example, the report acknowledges that \$18.6 billion of the estimated \$34.1 billion in total sales were made by businesses within a subzone of the Protected Region that includes Downtown Sacramento, which exists entirely outside of the Legal Delta.⁸ Therefore, the URS report also drastically overstated the size of the Delta economy.

Recommendation for Further Research

The above section describes the number of jobs within the Legal Delta, but it does not describe the economic impact of the Delta within the broader regional and state economies. It is recommended that the next phase of the Economic Sustainability Plan project include work scope and budget to prepare an economic impact analysis for the Delta economy.

In order to facilitate this type of analysis, it is recommended that highly detailed employment data be obtained from the State Employment Development Department (confidential firm-level QCEW data) or from commercially produced Dun & Bradstreet data at the establishment level that can be geocoded to the Delta boundaries. Benefits of obtaining data from either of these sources would include obtaining estimates of the gross receipts from Delta businesses, which would help to estimate the total economic output of the Delta economy.

It should be noted that obtaining data from the State Employment Development Department can require several months of lead time due to regulations intended to protect the confidentiality of individual employers. In addition, there may be significant challenges to obtaining the data from the Employment Development Department because their normal procedure is to disseminate the data to local jurisdictions (cities and counties), unless the Employment Development Department is willing to recognize DPC as an agency with legal authority for economic development in the Delta region.

⁸ California Department of Water Resources. *Technical Memorandum: Delta Risk Management Strategy Phase 1 – Economic Consequences*. May 2008. Accessed September 2010: http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Economic_Consequences_TM.pdf

Once obtained, the detailed Delta businesses data should be analyzed using input-output modeling software, such as IMPLAN, in order to estimate the indirect and induced economic impacts of Delta economic activity on the regional and/or statewide economies.

Key Delta Economic Sectors

Per the Delta Protection Act, the DPC is responsible for working to help sustain agriculture and meet increased needs for recreation within the Delta. The following section provides additional information about these key economic sectors.

Agriculture

The Delta lies at the heart of a highly productive agricultural region. Based on data provided by County Agricultural Commissioners, Table B-6 shows the estimated gross value of agricultural production for the six-county region. The value of agricultural production in these six counties was in excess of \$3.1 billion in 2009, including parts of the counties that lie outside of the Delta. This figure represents a snapshot of Delta agricultural activity, as agricultural production values can vary significantly from year to year due to commodity price fluctuations and changes in crop patterns.

Table B-6: Gross Value of Agricultural Production, 2009 (a)

County	Value of Production	% of Total
Alameda	\$37,167,000	1.2%
Contra Costa	\$64,423,300	2.0%
Sacramento	\$348,581,000	11.0%
San Joaquin	\$2,000,474,000	63.2%
Solano	\$251,922,500	8.0%
Yolo	\$462,132,900	14.6%
Total	\$3,164,700,700	100.0%

Note:

(a) includes agriculture revenue from livestock, poultry, and apiary products.

Sources: Annual Crop Reports issued by Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties, 2010; BAE, 2010.

Using 2006 data from the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), the DPC has compiled an estimate of total farmland within the Delta. This source indicates that approximately 35 percent of all farmland within the six-county region is located within the Delta, including 43 percent of prime farmland. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing crops, and can encompass harvested acreage, fallowed farmland, grazing pasture, dairies and feedlots, and both bearing and non-bearing orchards

and vineyards. In other words, the above figures reflect the distribution of land that could be used for farming purposes, as opposed to the distribution of actively farmed land. Please refer to Table B-10 for more discussion on FMMP estimates and their limitations regarding Delta land use.

While production data are available at the County level, there has generally not been specific tracking of the value of agricultural production within the Delta. In 2006, the California Department of Water Resources (DWR) published an estimate of agricultural production in the Delta during the 1998-2004 period, during which the annual value of Delta agricultural production averaged 26.4 percent of the regional total.⁹ Based on the estimated 2009 regional production of \$3.1 billion, this would place the 2009 value of current Delta agricultural production at approximately \$835 million annually. If instead one assumes that Delta agricultural production represents 35 percent of the regional total, in line with its share of farmland as defined by the FMMP, the value of Delta agricultural production would be approximately \$1.1 billion. Considering that the Delta contains a disproportionate share of the region's prime farmland, the value of the Delta's crops would likely be greater than \$1.1 billion.

A 2008 study by UC Davis estimated that the total crop revenues in Detail Analysis Units 185 and 186 (whose combined boundaries approximate those of the Legal Delta) amounted to \$439 million in 2010 dollars.¹⁰ With the addition of DWR's estimate for the total average annual revenues derived from animal farming in the Delta during the 1998-2004 period (also indexed to 2010 dollars), \$102 million, this methodology places the value of current Delta agriculture production at approximately \$540 million annually. This estimate is significantly lower than the one derived from FMMP data. These differences could be due to variations in the estimates of the acreage of farmland (some of which may be as much as fifteen years old), cropping pattern data, and/or assumptions in crop values. It is understood that the 2008 UC Davis study is being reviewed and updated. Further, DWR staff expect to release an updated Land Use Survey for the Delta region in spring 2011.¹¹ This may help to update the UC Davis analysis further.

Regardless of which estimate one utilizes, the value of Delta agricultural production remains a significant part of the statewide agricultural economy. The most current available data from the State Department of Food and Agriculture indicate the total value

⁹ California Department of Water Resources 2006. *The Value of the Agricultural Output of the California Delta*. July 27, 2006. Revised draft paper provided by Jim Rich, Division of Planning and Local Assistance.

¹⁰ UC Davis Department of Agricultural and Resource Economics. *Delta Agricultural Production Model*. Provided by Dr. Josué Medellín-Azuara on October 08, 2010. Findings were indexed to 2010 dollars in October, 2010.

¹¹ Personal communication with Jean Woods, Water and Land Use Scientist, Division of Statewide Integrated Water Management, Department of Water Resources. October 19, 2010.

of California's agricultural production in 2008 was \$36.2 billion. If this number was similar in 2009, then an estimated \$1.1 billion in crop production in the Delta would represent approximately 3 percent of the state total. Based on annual county crop production rankings as reported in the California Agricultural Resources Directory, the Delta would rank among the top 20 counties in terms of agricultural production out of a total of 58 counties statewide, were it encompassed within a single county rather than divided between six counties.¹²

Though there are difficulties in estimating the total acreage and production value of Delta agriculture, a comparison of County crop reports produced by the Counties' Agricultural Commissioners allows one to estimate the likely value of a harvested acre within the Delta, taking into account different commodity values. As illustrated in Table B-7, 2009 crop reports in the Delta counties indicate that an acre of blueberries or strawberries are likely to be the highest grossing use of agricultural land, whereas rangeland is likely to be the least lucrative. These figures can also be interpreted as the opportunity cost of converting active farmland to other uses, such as habitat preserves. For example, the Delta economy would lose approximately \$7,000 per year in gross revenue for each acre of asparagus cropland that is converted, in addition to losing any potential multiplier effect that would have resulted from that revenue being spent locally.

Recommendations for Further Research. The proceeding data provide a rough sense of the importance of agricultural production within the region and the Delta. However, due to a lack of specific tracking of agricultural production data for the Delta geography, there is currently neither a recent reliable estimate of the value of agricultural production in the Delta, nor a means of reliably tracking Delta production trends over time. At present, most of the County Agricultural Commissioners cannot readily provide specific reporting on the agricultural output for the portion of the Delta within their jurisdiction, due to budget and staffing limitations or confidentiality concerns.¹³ Further, discussions with representatives of crop associations or commissions for five of the Delta's crops indicate that such organizations also cannot easily provide access to crop production or acreage data for the Delta region specifically.¹⁴

¹² California Department of Food and Agriculture. *California Agricultural Resources Directory, 2008-2009*. 2009. Accessed October 2010: <http://www.cdfa.ca.gov/statistics/>

¹³ Sacramento County's Agricultural Commissioner's office estimated that 2009 crop value within the Sacramento County portion of the Legal Delta was \$113 million (Personal communication. Laura MacCready, Sacramento County Agricultural Commissioner's office. November 23, 2010). San Joaquin County Supervisor Ken Vogel provided information indicating the Delta portion of that County's agricultural output was approximately \$455 million in 2008 (Personal communication. Ken Vogel, San Joaquin County Supervisor, October 8, 2010).

¹⁴ Personal communications with the California Tomato Growers' Association, the California Cherry Advisory Board, the California Asparagus Commission, the California Association of Wine Grape Growers, and the California Blueberry Association. October 19, 2010.

According to SBX 7 1, the ESP should be updated every five years. Changes in Delta agricultural production values will be a key measure of the sustainability of the Delta economy over time. The county Agricultural Commissioners and the crop associations may be valuable sources of primary data on Delta agricultural production in the future. In addition, the California Department of Food and Agriculture's statistics division may be a useful source of data. Initially, the DPC should explore the possibility of working with the Agricultural Commissioners of each Delta County, to obtain reports on the agricultural production of the Delta on an annual or semi-annual basis, in order to provide the DPC and other interested parties with up-to-date information on this critical component of the Delta economy.

Table B-7: Crop Values Per Acre in Delta Counties, 2009 (a)

Crop Type	Avg. Gross Value Per Acre (b)	
	Low	High
Field Crops	\$57	\$381
Corn, Field & Silage	\$768	\$864
Hay, Alfalfa	\$510	\$819
Hay, Other	\$139	\$396
Pasture, Irrigated	\$55	\$175
Pasture, Rangeland	\$8	\$30
Rice	\$1,301	\$1,810
Safflower	\$360	\$488
Wheat	\$208	\$656
 Fruit & Nut Crops	 \$1,470	 \$4,465
Almonds	\$2,069	\$3,042
Apricots	\$2,008	\$4,415
Blueberries (c)	\$23,378	\$23,378
Cherries	\$4,971	\$11,916
Grapes, Wine	\$3,112	\$5,820
Olives	\$1,384	\$2,042
Peaches	\$1,891	\$6,363
Pears	\$5,174	\$5,320
Strawberries	\$6,800	\$15,600
Walnuts	\$1,988	\$3,296
 Vegetable Stock	 \$3,328	 \$5,073
Corn, Sweet	\$4,428	\$4,798
Asparagus (c)	\$7,043	\$7,043
Onions	\$7,002	\$13,400
Pumpkins	\$972	\$4,504
Squash	\$4,500	\$5,279
Tomatoes, Processing	\$2,961	\$4,402

Notes:

(a) Values reflect countywide averages, thereby including harvested acres that are located outside of the Delta.

(b) Low and high figures represent the lowest and highest values per acre reported for a given crop among the five Delta counties.

(c) San Joaquin County was the only county to publish data on blueberries and asparagus crops. Accordingly, the low and high figures are identical.

Sources: Annual Crop Reports issued by Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties, 2010; BAE, 2010.

Recreation and Boating

Characterized by numerous waterways, historic towns, and vast amounts of open farmland, the Delta stands out as an exceptional destination for visitors, including those coming for boating, fishing, hunting, hiking, biking, camping, and wildlife viewing. The DPC Resource Management Plan explains the following key points about recreation in the Delta:¹⁵

- Navigable waterways in the Delta-Suisun area are publicly accessible and currently constitute the majority of the recreational opportunities within the Delta.
- Most of the recreational facilities within the Delta are provided through private marinas with several thousand boat berths located in the Primary Zone.
- In addition to fishing related activities, waterskiing and riding personal water craft (PWC) are also popular water-oriented activities.
- The majority of the land within the Delta is privately owned, which reduces the availability of land-based recreation.
- Five fishing access/launching facilities owned by the California Department of Fish and Game and managed by Sacramento and Yolo counties are located within the Delta, in addition to Westgate Park, operated by San Joaquin County.
- Brannan Island State Recreation Area provides boat launching, camping, swimming, and nature interpretation.
- Hunting occurs mainly on private lands; although some hunting is allowed on State- and federally-owned lands and waterways.

In 1998, the DPC commissioned a study of the economic impact of recreational spending on the Delta economy. This study utilized data from the 1997 survey conducted by the California Department of Parks and Recreation and a 1994 economic input-output model (IMPLAN) to estimate regional impacts. At the time of its publication, this study estimated that 1.7 percent of Delta income and 3.2 percent of Delta jobs were attributable to boating recreation, including direct, indirect and induced impacts in the Delta and surrounding areas. As of 1995, it was estimated that visitors traveling to the Delta for recreational boating spend \$247 million inside the Delta and \$171 million outside, totaling \$418 million annually.¹⁶

Boating activity in the Delta continues to grow steadily. Shown below are estimates from the California Department of Boating and Waterways on recent trends in boater visitation

¹⁵ Delta Protection Commission. *Land Use and Resource Management Plan for the Primary Zone of the Delta*. 2009. Accessed September 2010:
<http://www.delta.ca.gov/Land%20Use%20and%20Resource%20Management%20Plan%20for%20the%20Prim.htm>

¹⁶ George Goldman, et. al., November 1998.

to the Delta. As shown, the current estimate is 7.4 million boating visitor days, an increase of 12 percent since 2000.¹⁷

Table B-8: Estimated Annual Boating Visitor Days to the Delta, 2000-2020

Year	Annual Vistor Days
2000	6,625,472
2005	7,012,710
2010	7,406,754
2015	7,686,640
2020	8,001,998

Avg. Annual % Change

2000-2010	1.1%
2010-2020	0.8%

Source: CA Dept. of Boating and Waterways, *Delta Boating Needs Assessment 2000-2020*; BAE, 2010.

Recommendation for Further Research. Data pertaining to recreational activities in the Delta and their contribution to the Delta economy are relatively dated, relying on surveys and data from the 1990s. New survey data on outdoor recreation are expected to be released by the California Department of Parks and Recreation by the end of 2010, which should facilitate an updated analysis of the impact of recreation on the Delta economy.

In addition to data regarding boating and fishing-related recreation, a new survey of outdoor recreation may provide relevant information on other recreation activities in the Delta to allow a more complete picture of the total contribution of this sector to the Delta economy.

Delta Economic Assets

The following sections describe key resources and infrastructure required to support the Delta economy. The information presented in the following sections is compiled from various previously published data sources, as indicated.

Water Supply and Quality

It is difficult to overstate the importance of the Delta to the State's water infrastructure. Two thirds of Californians get some of their drinking water from Delta and the water diverted for irrigation is critical to supporting California's \$36.2 billion agricultural

¹⁷ California Department of Boating and Waterways. *Sacramento-San Joaquin Delta Boating Needs Assessment 2000-2020*. 2002. Accessed September 2010: <http://www.dbw.ca.gov/Reports/deltaindex.aspx>

industry.¹⁸ This includes in-Delta agricultural production. Locally, the availability of water is crucial to the agricultural industry as well as to urban consumers. Moreover, water quality issues are of vital importance to the ecosystem of the Delta and the long-term sustainability of the recreation economy.

Delta Water Supply and Usage. As shown in Table B-9, in-Delta water usage has remained relatively stable over the course of decades, accounting for 4 to 5 percent of total water flow through the Delta, even as the Delta population has grown substantially. By comparison, outflow to the Bay has declined steadily since the 1930s and 1940s when it accounted for more than 80 percent of water passing through the Delta. Today outflow accounts for less than half of total flow through the Delta, contributing to ongoing issues of saltwater intrusion into the Delta ecosystem. Outflow has declined while exports have increased, with 17 percent of water now diverted into the State Water Project (SWP) and Central Valley Project (CVP) to supply urban and agricultural customers in the Bay Area, Central Valley, and Southern California. Finally, water usage by upstream consumers has increased at a steady pace over the past several decades, with 31 percent of water diverted from the Delta watershed before it reaches Delta.¹⁹

Table B-9: Delta Water Usage, 1930- 2005

Time Period	Average Annual Total Flow (MAF)	End Destination			
		Delta Watershed (a)	Delta	Exports (b)	Outflow to Ocean
1930-1949	25.80	14%	5%	0%	81%
1950-1969	31.71	24%	4%	5%	67%
1970-1989	34.34	29%	5%	15%	51%
1990-2005	32.85	31%	4%	17%	48%

Notes:

(a) Delta watershed uses, or those uses of water upstream from the Delta, include consumptive uses of applied water and diversions for Friant-Kern Canal, EBMUD's Mokelumne Aqueduct, and SFPUC's Hetch-Hetchy Aqueduct.

(b) Exports comprised of State Water Project and Central Valley Project diversions from Delta. Contra Costa Water District diversions not included.

Sources: Delta Vision Foundation, *Our Vision for the California Delta*, 2008; BAE, 2010.

Water bound for distribution through both the SWP and CVP is taken from the south Delta. The CVP has contracts to divert 3.3 million acre feet per year, which supplies primarily agricultural land south of the Delta but also supplies urban areas and wildlife refuges. The

¹⁸ California Department of Food and Agriculture, 2010. Accessed December 1, 2010: http://www.cdffa.ca.gov/Statistics/PDFs/AgResourceDirectory2008/1_2008_OverviewSection.pdf.

¹⁹ Delta Vision Foundation. *Our Vision for the California Delta*. January 29, 2008. Accessed September 2010: http://deltavision.ca.gov/BlueRibbonTaskForce/FinalVision/Delta_Vision_Final.pdf

SWP has contracts to divert 4.2 million acre feet per year from the Delta, which supplies primarily urban uses but also supplies agricultural uses south of the Delta. On average, the projects export a total of approximately 5 million acre feet annually.²⁰

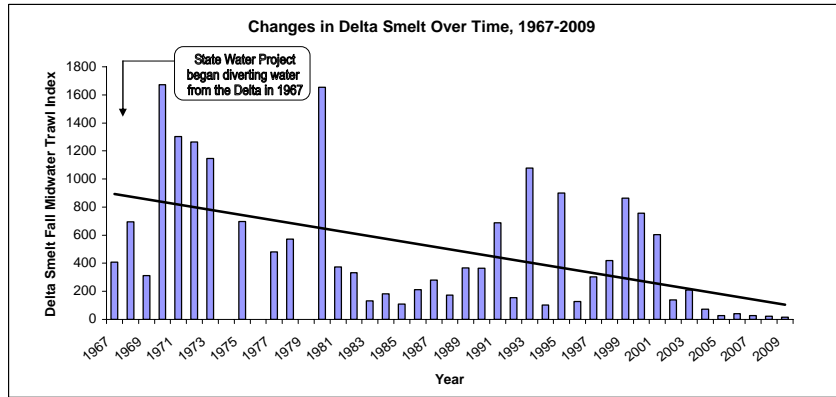
Delta Water Quality. Water quality is critical to agricultural, water recreation and fishing, habitat, and domestic consumption uses within the Delta. Over time, Delta water quality has declined. The charts on Figure B-2 show changes in Delta smelt, Delta water salinity at Collinsville, and water exports from within the Delta over time, from the 1960s through the mid-2000s. The chart at the bottom of Figure B-2 does not include water diverted for in-Delta use; however, as indicated in Table B-9, in-Delta water use has remained a fairly stable portion the available Delta water over time.

Key Trends and Statistics

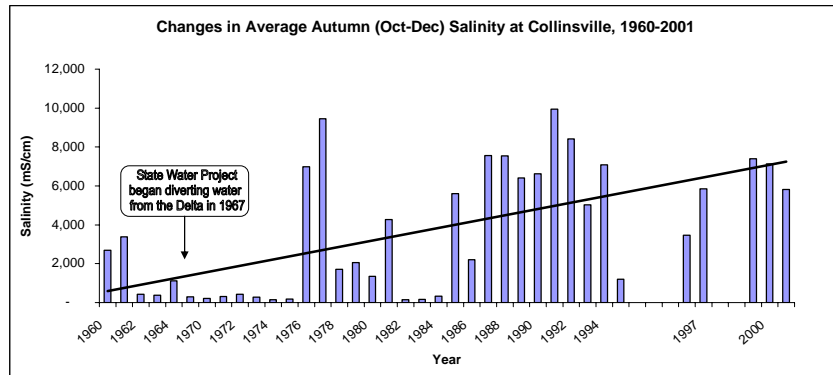
- Use of water in the Delta watershed (upstream uses) and exports of water from within the Delta have increased significantly over time, while outflows to the ocean have been reduced.
- Water diversions for in-Delta use have remained a fairly stable component of the available Delta water supply over time.
- The correlation between the water quality, smelt population, and water export statistics is cause for significant concern over how water diversions from the Delta may affect the Delta's important economic assets and the overall sustainability of the Delta economy.

²⁰ Delta Protection Commission, 2009.

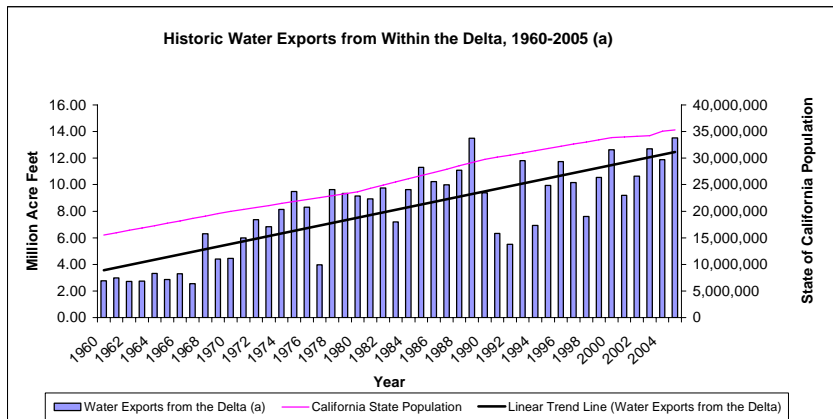
Figure B-2: Changes in Delta Smelt, Water Salinity, and Water Exports Over Time



Source: Dept of Fish and Game, Fall Midwater Trawl Abundance Indices for Delta Smelt (1967-2009); BAE 2010.



Source: Enright, Christopher, & Culberson, Steven D. (2010). Salinity trends, variability, and Control in the Northern Reach of the San Francisco Estuary. San Francisco Estuary and Watershed Science, 7(2). Retrieved from: <http://escholarship.org/uc/item/0>



Note:

(a) Includes diversions for the State Water Project, the Central Valley Project, and other diversions including the Contra Costa Water District, and the North Bay Aqueduct, but not including diversions for in-Delta use, which have remained relatively stable as a percentage of available water (See Table B-9).

Source: U.S. Census Bureau, 1960-2000; American Community Survey, 2004; Tully & Young, Inc., as published in Delta Vision Foundation, Our Vision for the California Delta, 2008; BAE, 2010.

Land Supply

The availability of land for various economic uses and the ability of local jurisdictions to manage potential land use conflicts will continue to be key factors shaping the Delta economy. Land use policies established by the Delta Protection Commission, the Delta counties, and the Delta cities will dictate the amount of land available to support a range of economic activities in the Delta. Predominant land uses within the Delta are listed in Table B-10, as categorized by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). As shown, the Primary Zone accounts for approximately two-thirds of the total land area of the Legal Delta and is primarily identified as farming uses, with less than one percent considered to be urbanized. As noted previously, this source defines "farmland" as including both harvested and idle acres. The Secondary Zone contains the vast majority of urbanized land within the Delta and is expected to continue to urbanize, driven by regional population growth.

Table B-10: Land Use Within the Delta, 2006

Land Use (a)	Acreage	% of Total Land	
		In Zone	In Legal Delta
Primary Zone			
Farmland	369,784	75.5%	72.2%
Grazing	26,962	5.5%	77.2%
Urban/Built-Up	3,387	0.7%	4.6%
Other	41,573	8.5%	66.5%
Water	48,347	9.9%	89.2%
Total	490,053	100.0%	66.5%
Secondary Zone			
Farmland	142,184	57.6%	27.8%
Grazing	7,943	3.2%	22.8%
Urban/Built-Up	69,998	28.3%	95.4%
Other	20,955	8.5%	33.5%
Water	5,858	2.4%	10.8%
Total	246,938	100.0%	33.5%
Legal Delta			
Farmland	511,968	69.5%	
Grazing	34,905	4.7%	
Urban/Built-Up	73,385	10.0%	
Other	62,528	8.5%	
Water	54,205	7.4%	
Total	736,991	100.0%	

Note:

(a) Land Use categories determined by USDA and ascribed by CA Dept. of Conservation.

Sources: Delta Protection Commission, Calculations Using Farmland Mapping and Monitoring Program Data, 2006; BAE, 2010.

Delta Land Cover Analysis

As an adjunct to the 2006 FMMP land use inventory, Parus Consulting conducted a simple land cover classification by applying Automated Feature Extraction (AFE) techniques to 2008 color orthophotos. Since the land cover classifications and techniques used in the AFE analysis differ from those of the FMMP, direct comparisons in land cover cannot be made between the two approaches. The results of the Parus analysis should not be interpreted to indicate change in land uses since 2006. Rather, the goal of this preliminary land cover classification is to establish a baseline land cover GIS dataset that is specific to the Delta, and that can be repeated in future years at a moderate cost in order to monitor Delta land use trends. The AFE analysis also provides information regarding parcelization of land within the Delta.

A major advantage of the AFE technique is that specific land cover types can be targeted for analysis and then monitored over time. For instance, the AFE software can “learn” the unique characteristics of vineyards or riparian areas, then quickly identify and map these resources throughout the Delta. Since the aerial photo datasets used in the analysis are updated on an annual or bi-annual basis, the analysis can be readily repeated in future years to analyze trends. Additionally, the land cover categories can be refined and expanded to distinguish between various land cover types (e.g., riparian vs. grassland, row crops vs. vineyards or orchards).

Since the AFE analysis was conducted with limited ground-truthing, the results should be considered preliminary. Accuracy can be greatly improved through additional ground-truthing and refinement of the land cover classes based on representative land uses in the Delta.

Methods

Parus Consulting prepared a 4-class land cover classification of the entire Legal Delta using 2008 color orthophotos to quantify the land use types in the Primary and Secondary Zones of the Delta. The photos were digitally analyzed using Automated Feature Extraction (AFE) software. The AFE software analyzes the reflectance of each of the three bands (red, green, blue) comprising the color imagery, then assigns it to one of the user-identified land cover categories based on known training sites. The software is capable of “learning” from classification errors based on ground-truthed data provided by the user. Due to exceptionally large file sizes, the 1’ resolution imagery was re-sampled to 20’ prior to processing. For the purposes of this preliminary assessment four land cover classes were identified:

- Agriculture
- Hardscape
- Other
- Water

The “agriculture” land cover type was used to describe active row/field and tree crop cultivation, vineyards, orchards, and fallow land. The “hardscape” classification includes roadways, industrial land uses, large industrial areas, rip-rapped levee faces, other impervious surfaces, and structures and facilities within other land use types (e.g. agriculture). Types of land use in the “other” category consist primarily of areas that could provide habitat of ecological function, including large expanses of open areas, wetlands, and urban forests. The classification “water” was given to areas of open water – from rivers and streams to retention ponds.

Results

As with the 2006 land use data previously discussed, the results of the Parus analysis indicate that “agriculture” is the predominant land use in both the Primary and Secondary Zones of the Delta. Note, however, that the FMMP applies a standardized and widely accepted methodology, while the Parus analysis is intended to map broad land cover types and establish a baseline methodology for future Delta-specific land cover assessments.

The Parus analysis found that in the Primary Zone, the average parcel size devoted to “agriculture” was nearly 40 percent larger than in the Secondary Zone. Additionally, the parcel size for “other” land uses is roughly twice the size in the Primary Zone versus the Secondary Zone, on average (upper part of Table B-11). These results seem to indicate that the primary zone supports larger, more intact areas devoted to agriculture and, potentially, species habitat. In the Secondary Zone, the reduced size of the parcels in the “other” classification and the increased acreage that is “hardscape” indicates that these areas may support less valuable habitat areas and may be more prone to urban expansion (middle part of Table B-11). The results of the land cover analysis are presented graphically in Figures B-3 and B-4, below. The complete land cover classification map is provided as Figure B-5.

Table B-11: Land Use within the Delta

Land Class	Total Acres	Average Parcel Size (acres)	% of Total Land	
			In Zone	In Legal Delta
Primary Zone				
Agriculture	371,994	57.6	75.7%	50.6%
Hardscape	32,311	3.5	6.6%	4.4%
Other	35,484	12.4	7.2%	4.8%
Water	51,803	28.1	10.5%	7.0%
Total	491,592	47.7	100%	66.8%
Secondary Zone				
Agriculture	136,470	22.4	56.0%	18.6%
Hardscape	64,086	11.3	26.3%	8.7%
Other	34,630	6.5	14.2%	4.7%
Water	8,612	7.6	3.5%	1.2%
Total	243,798	16.7	100%	33.2%
Legal Delta				
Agriculture	508,464	48.2	69.1%	
Hardscape	96,397	8.7	13.1%	
Other	70,114	9.5	9.5%	
Water	60,415	25.2	8.2%	
Total	735,390	37.4	100%	

Source: Parus Consulting, 2010; BAE, 2010.

Figure B-3. Land Use Characteristics of the Primary Zone

■ Agriculture ■ Hardscape ■ Other ■ Water

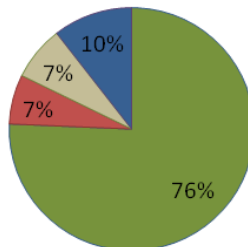
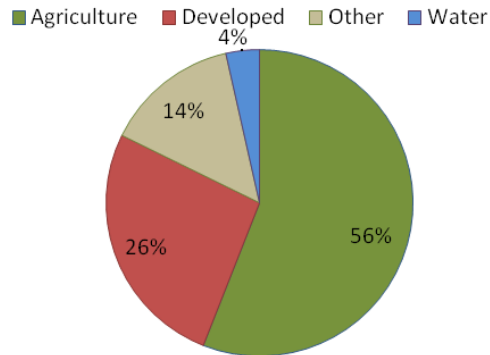


Figure B-4. Land Use Characteristics of the Secondary Zone



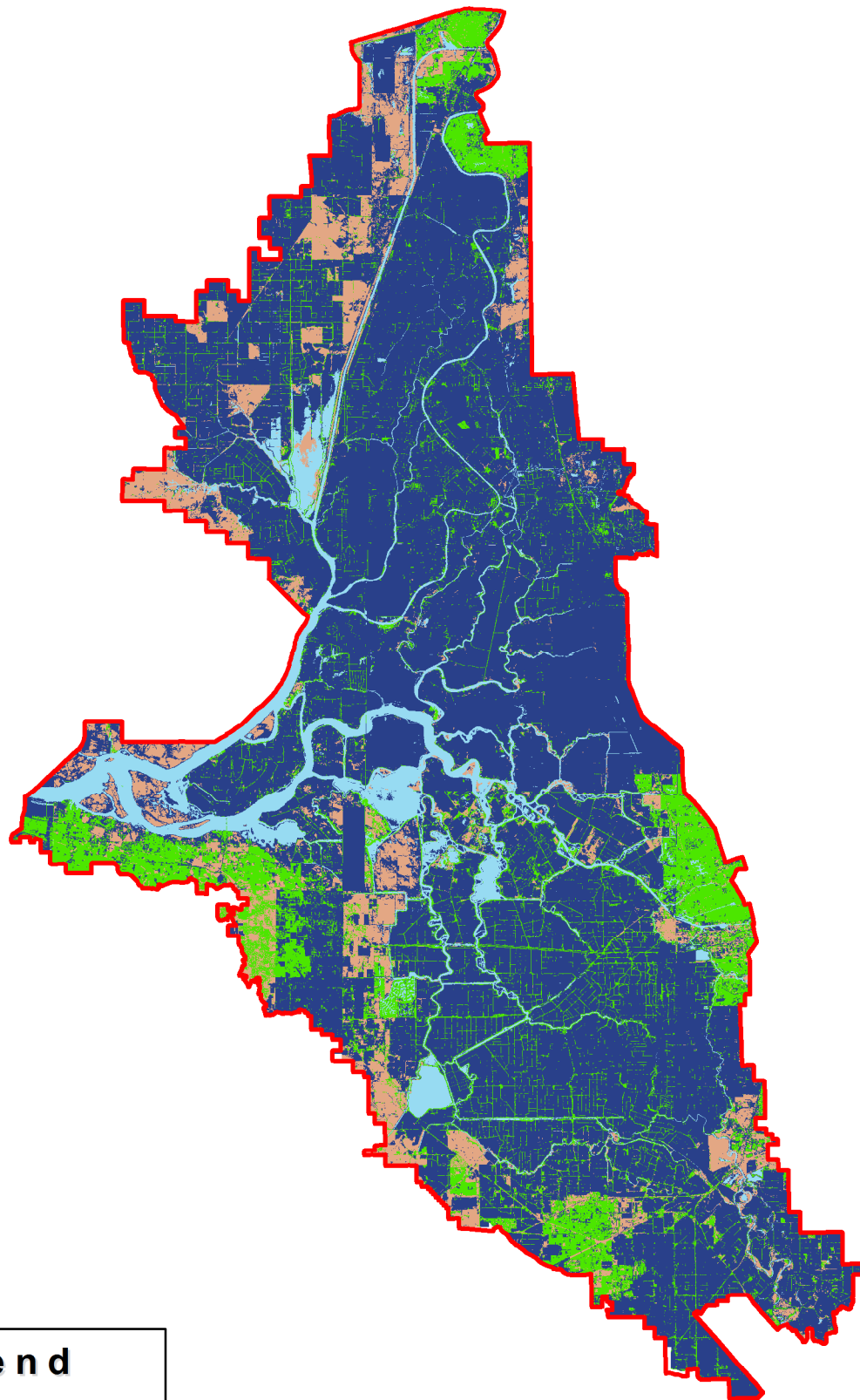
Key Trends and Statistics

- Consistent with the 1992 Delta Protection Act, land uses within the Primary Zone have remained fairly stable, and focused on agriculture.
- Since 1990, urban and other land uses in the Secondary Zone have gained substantial acreage while land reserved for agricultural use has declined; this has been fueled, in part, by peripheral population growth in the Bay Area as well as Stockton and Sacramento.²¹
- As the developed urban edges move into the Delta from the west and the east, this creates pressure for additional development to spill further into the Delta.
- Increased urbanization adds other stressors to the Delta. This includes upward pressure on existing services, increased runoff, less agricultural land, and less flexibility in pursuing alternative land management strategies.²²
- An additional 160,000 acres of land in Delta-Suisun Marsh region has the potential to be urbanized.²³

²¹ Delta Protection Commission, 2009.

²² California Department of Water Resources, March 2007.

²³ Ibid.



Legend

Legal Delta

Classification

Agriculture (515,489 acres)

Hardscape (98,327 acres)

Other (71,622 acres)

Water (60,589)

Figure B-5

DELTA STUDY AREA:
LAND COVER CLASSIFICATION

1 in = 8 miles

0 5 10
Miles

N



bae

ROONEY *Tate* GROUP

PARUS
CONSULTING, INC.

Recommendation for Additional Research

Due to schedule and budget constraints for the framework study, a simple 4-class scheme was used in this analysis. However, the imagery and software are capable of performing a more-detailed land cover analysis, if desired in the future. For example, it would be possible to make a distinction between permanent crops like grapes and nuts versus annual crops. Greater distinction of uses in the “hardscape” category, and/or some distinction between types of uses in the “other” land use category are also feasible. Additionally, the relatively simple land cover analysis can serve as a model for future analyses in order to detect changes in land use within the Delta over time.

Given agriculture’s importance to the overall Delta economy, tracking the acreage of land use for agriculture over time will be an important indicator of economic sustainability. Orthophotos of similar quality to those used in this study are typically purchased by State agencies on an annual basis. Also, the learners created by the AFE software during the classification process can be reused with similar orthoimagery to produce a comparable analysis in the future, which would provide a sound and relatively easily updated indicator of the actual change in Delta land uses over time.

Delta Land Use Policies

This section of the Framework Study provides a summary of key Delta land use policies established by the Delta Protection Commission and by the local governments in the Delta region. These policies are important, because the local governments of the Delta region will interface directly with the DPC in promoting economic growth and sustainability in the Delta. The Delta Reform Act requires local land use policies in the Primary Zone to be consistent with the DPC’s Resource Management Plan, it is important that they align with DPC objectives. The Delta counties and cities will be key partners with the DPC by implementing land use regulations in the Delta that will help to promote a sustainable Delta economy.

Delta Protection Commission Land Use Policies

The DPC’s Delta Strategic Plan and Resource Management Plan both provide guidance on land use issues within the Delta. Following is a summary of key policies:

- The Delta Strategic Plan aims to preserve agricultural heritage and direct new residential, industrial, and commercial development towards existing communities with infrastructure in place.²⁴
- Agriculture and open space should be priority land uses in Primary Zone. If agriculture is no longer appropriate, land uses that would not adversely affect

²⁴ Delta Protection Commission. *Delta Protection Commission 2006-2011 Strategic Plan*. July 27, 2006. Accessed September 2010: http://www.delta.ca.gov/res/docs/strat_plan_2006-2011.pdf

agriculture on surrounding lands or the viability or cost of levee maintenance may be permitted.²⁵

- Conversion of agricultural lands should occur first and foremost in those locations where productivity and agricultural values are the lowest.²⁶
- “Buffer uses” should be planned for, when possible, around agricultural uses so as to protect agricultural operations and soil from potential contaminations or spreading development.²⁷

County Land Use Policies

Following is a summary of key land use policies established by the five Delta Counties that are relevant to the Delta area. Attachment 2 contains more detailed information regarding Delta county land use policies.

- The zoning codes for the five primary Delta counties allow a variety of uses in the Primary Zone, including agriculture and agriculturally-oriented uses; outdoor recreation; wildlife habitat; public facilities; and limited areas for commercial, industrial, and rural residential development.²⁸
- Counties use a variety of zoning devices to ensure the long-term agricultural use of lands, including the inclusion of agricultural elements in their general plans, the adoption of urban limit lines, the establishment of buffers between agriculture and other approved uses, the adoption of Right-to-Farm ordinances, full support of the Williamson Act programs, the control of land subdivision and land use types allowed within agricultural areas, the establishment of minimum agricultural parcel sizes, and the establishment of limits on General Plan land use designation changes.²⁹

City Land Use Policies

Following is a summary of key land use policies established by the Delta cities that are relevant to the Delta area. Attachment 3 contains more detailed information regarding Delta city land use policies.

- While agricultural land under county jurisdiction is largely protected from conversion to other uses, significant portions of agricultural land within city limits and adjacent planning areas are slated to develop with urban uses.

²⁵ California Department of Water Resources, March 2007.

²⁶ Ibid.

²⁷ Ibid.

²⁸ California Department of Water Resources, March 2007.

²⁹ Ibid.

- The cities of Lathrop, Stockton, Tracy, and Sacramento have all identified significant areas currently in agricultural use that are planned for future development with housing, commercial, and industrial uses.
- While some cities have planned for recreational and other permanent open space uses as a buffer to the Primary Zone and/or other agricultural areas, Delta cities generally do not have policies addressing potential land use incompatibilities at the urban-rural edge.
- Following on best practices information developed through the Sacramento Area Council of Government's Rural Urban Connections Strategy (RUCS) process, there may be opportunities for DPC to coordinate with local jurisdictions to proactively assure that land uses in the Secondary Zone do not impact on the long-term viability of agricultural uses in the Primary Zone.

Levee Infrastructure

All Delta services depend on the functioning of levees. With much of the Delta located near or below sea level, the approximately 1,100 miles of levees that surround reclamation tracts are essential to protecting agricultural and urban land as well as certain wildlife habitat. As land subsidence has continued to affect certain areas of the Delta, the importance of levees has become more pronounced and their importance is expected to continue to increase due to expected rises in sea level.

Key Trends and Statistics

- Most land throughout the Legal Delta is below sea level, sometimes as low as 25 feet, and subsidence rates of 0.5 to 1.5 inches per year are not uncommon. About 65 island tracts in the Delta rely upon levees to prevent inundation.³⁰
- Sea level is about 0.6 foot higher today than it was in 1920; by 2100, sea level will rise an estimated additional 0.6 to 1.5 feet, with the possibility of an additional 0.5 foot rise if the Greenland ice melt accelerates.³¹
- More than 700 miles, or 65 percent, of Delta levees are classified as "non-project," meaning they are not part of an authorized federal flood control project. Therefore, there is no one master jurisdiction responsible for coordinated maintenance. Non-project levees have been built by landowners or reclamation districts and are frequently not as durable as project levees.³²
- A 1998 study found that levees on 55 islands did not meet Public Law 99 (PL-99) standards. Bringing sub-optimal levees up to PL-99 standards was estimated to cost somewhere from over \$350 million to around \$1 billion (costs include repair,

³⁰ California Department of Water Resources, March 2007.

³¹ Ibid.

³² Ibid.

roadway improvements, engineering fees, and ongoing maintenance).³³ (Integrity Program Plan)

- Even though some levees are substandard, they still provide valuable protection to Delta property, infrastructure, and the adjacent urban areas.

Transportation and Other Infrastructure

Due to the Delta's location between major population areas, its unique resources, especially water and natural gas, and its flat terrain and general lack of development, the Delta has high value as a utility and transportation corridor. This status as a key transportation and energy corridor within the state also means that local producers have easy access to markets throughout the state and beyond. Moreover, the availability of reliable local infrastructure including rural roads suitable to agricultural production and irrigation infrastructure, help to support key sectors of the local base economy.

Key Trends and Statistics

- Three interstate freeways (Interstate 5, Interstate 80, and Interstate 580) provide major transportation and trucking routes that pass the periphery of the Delta. The three major state highways in the Delta (State Routes 4, 12, and 160) are typically two lanes, sometimes built on top of levees. Originally meant for lower traffic volumes at moderate speeds, the state highways are now heavily used for regional trucking, recreational access, and commuting. More than 50 bridges, including approximately 30 drawbridges, span the navigable channels of the Delta.³⁴
- Traffic on Highways 4, 12, 160 and I-5 increased, on average, by 30% between 1992 and 2004, while the population of the surrounding 6 Delta counties only increased by 17%, on average, between 1990 and 2000. In other words, traffic is growing disproportionately in the Delta as a result of freeway congestion and increased port activity in Northern CA.³⁵
- See Tables B-12 and B-13 below for more detailed information on trends in auto and truck traffic along Delta highways
- Regional rail traffic between the Bay Area and the Central Valley passes through the Delta. The Amtrak San Joaquin route from Bakersfield to Sacramento/Oakland, which crosses through the Delta, had nearly 800,000 riders in 2006. In addition, companies such as the Sierra Northern Railway use existing short-line tracks for inter-regional freight and passenger services.³⁶

³³ CALFED Bay Delta Program. *Levee System Integrity Program Plan – Final Programmatic EIS/EIR Technical Appendix*. July 2000. Accessed September 2010: http://calwater.ca.gov/calfed/library/Archive_LSI.html

³⁴ Delta Protection Commission, 2009.

³⁵ California Department of Water Resources, March 2007.

³⁶ Delta Protection Commission, 2009.

- Two major ports lie north and east of the Primary Zone, the Ports of Sacramento and Stockton, respectively. The Stockton channel is 35 feet deep and can handle 55,000-ton class vessels with full loads. More than 300 ships and barges used the channel in 2005. The Sacramento ship channel is 30 feet deep with plans underway to increase its depth to 35 feet. Both ports are likely to expand in the future, which would result in an increase in ship and barge traffic through the Delta. Several million tons of diversified products are shipped through the Delta each year.³⁷
- The Sacramento and San Joaquin Rivers were historically used to transport bulk goods to and from the Ports of Sacramento and Stockton, before improvements in the highways, rail systems, and pipelines facilitated other means of transport. The Ports of Oakland, Stockton, and Sacramento are collaborating on the California Green Trade Corridor/Marine Highway Project to transfer maritime shipping containers from Oakland to the two inland ports through the Delta by barge in order to reduce traffic congestion and greenhouse gas emissions.³⁸ Recently, the project received a \$30 million TIGER grant under American Recovery and Reinvestment Act.³⁹

³⁷

Ibid.

³⁸

League of Women Voters of the Bay Area Education Fund. "Barging In: Green Shipping to Inland Ports." *Bay Area Monitor*. September 28, 2009. Accessed October 2010: http://www.bayareamonitor.org/index.php?option=com_content&view=article&id=173:barging-in-green-shipping-to-inland-ports&catid=97:october-november-2009&Itemid=98

³⁹

Metropolitan Transportation Commission. "Bay Area to Benefit from \$76 Million in TIGER Grants." *Transportation News*. February 19, 2010. Accessed October 2010: <http://www.mtc.ca.gov/news/info/stimulus2.htm>

Table B-12: Total Vehicle Trips on Key Transportation Routes, 1999-2009

Highway/Intersection	Total Vehicle Trips (a)			% Change 1999-2009
	1999	2004	2009	
State Route 4				
Contra Loma Blvd. (Antioch)	178,000	221,000	222,000	24.7%
Lone Tree Way (Brentwood)	45,700	45,000	33,900	-25.8%
Maybeck Rd. (Stockton)	16,900	21,500	17,100	1.2%
State Route 12				
Jct. Rt. 160 (Isleton)	29,400	33,100	39,300	33.7%
Glasscock Rd. (Lodi)	28,200	34,100	31,000	9.9%
State Route 160				
Wilbur Ave. (Antioch)	20,600	25,200	25,000	21.4%
Jct. Rt. 220 (Walnut Grove)	4,900	5,600	4,700	-4.1%
Hood-Franklin Rd. (Sacramento)	3,500	3,700	3,900	11.4%
Interstate 5				
Jct. Rt. 12 (Lodi)	91,000	149,000	130,000	42.9%
Twin Cities Rd. (Walnut Grove)	87,500	114,000	107,000	22.3%
Laguna Blvd. (Elk Grove)	115,000	164,000	162,000	40.9%

Note:

(a) Total vehicle trips for a given point is the sum of the average number of vehicles that pass that point in both directions in the course of a day. It counts the total volume of traffic along that stretch of highway, not the number of "round trips."

Sources: CA Dept. of Transportation, 1999, 2004 & 2009; BAE, 2010.

Table B-13: Truck Traffic on Key Transportation Routes, 1998-2008

Highway/Intersection	1998		2008		% Change 1998-2008
	Total Truck Trips (a)	Truck % of Total	Total Truck Trips (a)	Truck % of Total	
State Route 4					
Byron Highway (Brentwood)	5,110	13.8%	5,540	15.0%	8.4%
Maybeck Rd. (Stockton)	1,748	10.2%	1,918	11.2%	9.7%
State Route 12					
Sacramento/San Joaquin County Line	1,960	13.1%	2,115	14.1%	7.9%
State Route 160					
Wilbur Ave. (Antioch)	2,150	7.9%	2,365	8.7%	10.0%
Leary Rd. (Walnut Grove)	179	5.8%	236	7.6%	31.8%
Interstate 5					
Rt. 12 (Lodi)	19,767	15.2%	23,459	18.0%	18.7%

Note:

(a) Total truck trips for a given point is the sum of the average number of trucks that pass that point in both directions in the course of a day. It counts the total volume of truck traffic along that stretch of highway, not the number of "round trips."

Sources: CA Dept. of Transportation, 1998, 2003 & 2008; BAE, 2010.

Other Infrastructure

- More than 500 miles of transmission lines and more than 60 substations lie within the Delta boundaries. Several electrical peaking plants surrounding the Delta depend on these transmission lines.⁴⁰
- The three major 500 kW transmission lines that run through the Delta (operated by PG&E and Western Area Power Administration) carry approximately 10 percent of the State's supply during summer loads.⁴¹
- Power plants in Antioch and Pittsburg use Delta water for cooling.⁴²
- There were approximately 240 operating natural gas wells within the Delta-Suisun Marsh region in 2004. Natural gas pipelines serve local gas fields and regional pipelines. Pipelines carry gasoline and aviation fuel across the Delta from Bay Area refineries to

⁴⁰ Delta Protection Commission, 2009.

⁴¹ California Department of Water Resources. *Technical Memorandum: Delta Risk Management Strategy Phase I – Economic Consequences*. May 2008. Accessed September 2010:
http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Economic_Consequences_TM.pdf

⁴² California Department of Water Resources, March 2007.

depots in Sacramento and Stockton for distribution to Northern California and Nevada. They provide approximately 50 percent of the transportation fuel used in that region.⁴³

- On a peak winter day, natural gas from PG&E's MacDonald Island storage facility in the Delta can supply 20-25% of gas needed in Northern CA.⁴⁴
- However, in order to protect agricultural uses, ecosystem, and recreational value, the DPC's Strategic Plan identifies need to reduce authorization of new infrastructure through Delta, when possible, especially when in service of communities outside Delta.⁴⁵

Ecosystems and Habitat Resources

Ecosystem and habitat resources are key in directly supporting certain sectors of the local economy including recreation and visitor-serving businesses. Moreover, they can play an indirect role in supporting the agricultural economy with certain habitat areas serving as a permanent buffer between urban and agricultural uses. Finally the ecosystem and habitat resources help to bolster the local housing economy, as home owners benefit from proximity to healthy waterways and open space. In efforts to protect and enhance the Delta ecosystem, which may involve conversion of productive farmland for habitat restoration, it will be necessary to consider how the conversion would affect the continued maintenance of Delta infrastructure. This maintenance is dependent to a large extent upon the revenues generated by the current economic activity that could be displaced.

Key Trends and Statistics

- According to FMMP data, between 1990 and 2004, the amount of land identified as being in agricultural use in the Legal Delta/Suisun Marsh declined by almost 40,000 acres. While approximately 43 percent of this acreage was converted to Urban/Built-Up Land, the other 57 percent was converted to "Other Land" or returned to being predominantly inundated.⁴⁶
- "Other Land" consists of many land use categories, including ecological restoration. The California Department of Conservation has begun a pilot program in four San Joaquin Valley counties (Madera, Merced, Fresno, and Stanislaus) to begin tracking conversions to "Other Land" status. The most recently published data from the Rural Land Mapping Project shows that, between 2004 and 2006, 10,900 acres of irrigated agricultural land were converted to "Other Land" in the four pilot counties. Of that,

⁴³ Delta Protection Commission, 2009.

⁴⁴ California Department of Water Resources, May 2008.

⁴⁵ Delta Protection Commission, July 27, 2006.

⁴⁶ California Department of Water Resources, March 2007.

nearly 3,200 acres, or 29 percent of converted land, resulted from ecological restoration projects.⁴⁷

- A study prepared by M.Cubed for the Solano County Water Agency in 2009 analyzed the economic impacts of converting active agricultural land to protected habitat. On average, for every acre of farmland converted, the M.Cubed study estimated that the net reduction in total economic output would total \$837 each year, of which \$325 would be from value-added production. County wages would be reduced by an average of \$131 each year, and one job would be lost for approximately every 200 acres of land converted. In addition, county property taxes and sales taxes would decline by an average annual amount of \$12 and \$4 per acre, respectively. These figures account for the cumulative direct, indirect, and induced impact resulting from a loss of farm production and hunting activity as well as an increase in output related to the construction and maintenance of the habitat areas.⁴⁸
- The most recent available draft of the California Natural Resources Agency's Bay-Delta Conservation Plan calls for the conversion of 80,000 acres of land within the Legal Delta/Suisun Marsh for ecological restoration over the next 40 years. Restoration areas would include 65,000 acres of tidal marsh and associated aquatic estuarine habitat, 5,000 acres of riparian habitat, and 10,000 acres of new floodplain.⁴⁹

⁴⁷ California Department of Conservation. *California Farmland Conversion Report 2004-2006*. December 2008. Accessed October 2010: <http://www.conservation.ca.gov/dlrp/fmmp/pubs/2004-2006/Documents/Intro%202004-06%20FCR.pdf>

⁴⁸ M.Cubed. *The Economic Impact to Solano County from Converting Agricultural Land to Wetlands Habitat*. January 2009. Provided by the Solano County Water Agency.

⁴⁹ California Natural Resource Agency. *Bay-Delta Conservation Plan – Working Draft Conservation Strategy*. August 3, 2009. Accessed October 2010: <http://bdcweb.com/BDCPPlanningProcess/DocumentsAndDrafts.aspx>

Table B-14: Land Use Conversion, Legal Delta/Suisun Marsh, 1990-2004 (a)

Land Use (b)	Acreage		Change	% Change
	1990	2004		
Agricultural (c)	596,603	557,896	-38,707	-6.5%
Urban/Built-Up	57,351	74,098	16,747	29.2%
Other	100,090	120,535	20,445	20.4%
Water	83,170	85,065	1,895	2.3%
Total (a) (d)	837,214	837,594		

Notes:

(a) Figures represent the combined acreage of the Legal Delta and the Suisun Marsh, an adjacent protected region. Hence, total acreages exceed that of the Legal Delta alone, as represented in other tables.

(b) Land use categories determined by USDA and ascribed by CA Dept. of Conservation.

(c) Agricultural land includes both farmland and grazing land.

(d) Discrepancy may be due to refined mapping techniques or changes in land use definition between 1990 and 2004.

Sources: CA Dept. of Water Resources, *Status and Trends of Delta-Suisun Services*, 2007; BAE, 2010.

Appendix C: Summary of Delta Planning Projects

Appendix C: Summary of Delta Planning Initiatives

Initiative	Lead Agency	Purpose	Objectives	Milestones	Economic Effects	Farmland Impacts	Resource Link
CALFED Levee Stability Program	USACE	Quick implementation of levee repairs to reduce risk of catastrophic failure	Flood risk management; Ecosystem restoration; Water quality, supply, conveyance	in planning phases	Could prevent imminent flooding (and associated cost to CA and RDs) by using federal \$ to fix levees		
Delta Long-term Management Strategy	USACE, USEPA, DWR, Bay-Delta Authority, CVRWQCB	Examine and coordinate sediment needs and management	Improve channel function; Rehabilitate levees; Protect ecosystem, water supply, water quality	Long-term dredge plan charter complete (April 2007)	Dredging allows continued use of ports for economic activities; Use of dredged materials could be more cost efficient for levee repairs		http://www.deltaltms.com/
Delta Risk Management Strategy	DWR	Evaluate potential impacts on Delta water supplies based on 50-, 100-, and 200-year projections for the following impacts: subsidence, earthquakes, floods, climate change & sea level rise, or a combination of the above	Study the sustainability of the Delta, assess major risks to Delta resources - evaluate the consequences, and develop recommendations to manage the risk	Phase 1 Report complete (2009)	Evaluates consequences of flooding		http://www.drms.water.ca.gov
The Delta Vision	Blue Ribbon Task Force	Develop a durable vision for sustainable management of the Delta	Restore and maintain functions and values important to the environmental quality of the Delta and the economic and social well being of the people of CA	Completed Strategic Plan and Implementation Report (2008)	Implementation Report advises development of a Delta regional economic plan by 2011 to support increased investment in agriculture, recreation, tourism, and other resilient land uses	potential benefit	http://www.deltavision.ca.gov
San Francisco to Stockton Navigation Improvement Study	USACE	Identify and recommend an effective, affordable and environmentally sustainable navigation project to improve the economic efficiency of the John F. Baldwin and Stockton Ship Channels	Improve economic efficiency in the movement of goods along the navigation route from SF Bay to Stockton in a manner that is environmentally sustainable; Where feasible, facilitate beneficial use of dredged materials by providing them to local projects	Scoping in 2008	Improved use of port		http://www.spn.usace.army.mil/projects/stockton_navigation/index.html
Sacramento Deep Water Ship Channel Project	USACE	Identifying and recommending an effective, affordable and environmentally sustainable navigation project to improve safety and the economic efficiency of the Sacramento Deep Water Ship Channel	Improve safety and economic efficiency in the movement of goods along the Sacramento Deep Water Ship Channel in a manner that is environmentally sustainable; Where feasible, facilitate beneficial use of dredged materials by providing them to local projects	Limited Reevaluation Study (2008)	Improved use of port		http://www.sacramentoshipchannel.org/

Initiative	Lead Agency	Purpose	Objectives	Milestones	Economic Effects	Farmland Impacts	Resource Link
CALFED Surface Storage Investigations/Delta Wetlands Project	DWR, USBR, USACE	Evaluate 5 surface storage projects for water storage and habitat enhancement: Delta Wetlands Project = the alternative located in the Delta	Increase water supply, reliability, quality – support ecosystem restoration through expanded storage capacity and increased operational flexibility/Analyze effects of water transfers, banking, and augmenting outflow – Propose using 2 delta islands for storage and 2 for habitat	Place of Use EIR (2010) FEIR/S (2009)	Potential loss of income from existing land uses – economic benefits of water storage and habitat preservation?	In the Delta, conversion of approx 17,000 acres of ag land on Bouldin, Webb, Holland, and Bacon	http://www.water.ca.gov/storage/ http://www.deltawetlandsproject.com/ http://www.deltawetlands.com/
CALFED Ecosystem Restoration Program Conservation Strategy/Delta Regional Ecosystem Restoration Implementation Plan	DFG, NMFS, FWS	Develop strategy to achieve recovery of at-risk species; Re-habilitation and restoration of natural processes and functions within the estuary and watershed; Guide for implementation	Establish restoration targets, programmatic actions, and conservation measures	Draft Conservation Strategy for Stage 2 Implementation submitted to Delta Vision (2008)	Upfront cost, but could improve value of Delta		http://www.dfg.ca.gov/erp/
Delta Islands and Levees Feasibility Study	USACE, DWR	Develop a road map to identify water and related land use problems and opportunities	Ecosystem restoration; Flood risk management for legacy towns and other population centers	NEPA Scoping Workshops (2009)	Upfront cost for long-term preservation of ecology and built environment		
Bay-Delta Conservation Plan	NOAA, FWS, DWR	Help recover endangered and sensitive species and ensure sufficient and reliable water supplies	Identify and implement conservation strategies, ecologically friendly ways to move water through and/or around the delta, address impairment to water quality Provide basis for issuance of endangered species permits for operation of State and Federal water projects.	Plan is in preliminary draft (expected release Jan 2010)	Upfront cost for long-term preservation of ecology and water supply and quality	Habitat enhancement suggested around the periphery of the delta. There is a 10,000 acre target within the planning area. Too early to tell how much agriculture may be converted for habitat creation/preservation	http://bdcweb.com/Home.aspx
Delta Habitat Conservation and Conveyance Program	DWR	Inform BDCP	Preliminary planning studies and engineering for isolated conveyance	Draft IS and MND prepared (2010)			
FloodSAFE California/Central Valley Flood Management Planning Program	DWR	Improve public safety through integrated flood management	Increase flood protection, improve preparedness and response, support growing economy, enhance ecosystems, promote sustainability	Draft Strategic Plan (2008)	Upfront cost for long-term preservation of ecology and built environment		http://www.water.ca.gov/floodsafe/ http://www.water.ca.gov/cvfm/
Lower San Joaquin Feasibility Study	USACE	Develop plans for flood management and ecosystem restoration	Flood risk management; Ecosystem restoration	NOI/NOP (2010) EIS/EIR (planned 2014)	Upfront cost for long-term preservation of ecology and built environment		http://www.sjafca.org/news_pr_01_15_2010.php

Initiative	Lead Agency	Purpose	Objectives	Milestones	Economic Effects	Farmland Impacts	Resource Link
Delta Regional Monitoring Plan	SWRCB	Develop a comprehensive regional monitoring plan for the delta	Implement a framework to coordinate monitoring and assessment efforts among multiple agencies	Draft Plan (2010)			http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/draft_project_plan_may2010.pdf
Bay Protection and Toxic Clean up Program: Sediment Quality Objectives	SWRCB	Establish a water quality basis to regulate sediment	Develop objectives for direct effects of toxin build-up on organism, and indirect effects on human health	Phase II Scoping Document (2010)			http://www.swrcb.ca.gov/water_issues/programs/bptcp/sediment.shtml
Delta Methylmercury Total Maximum Daily Load Program	CVRWCQB	Address methylmercury impairment in fish	Develop a water quality attainment strategy including establishing a TMDL and amendment to the Water Quality Control Plan		TMDL policies could dictate limitations on activities associated with formation of methylmercury.		http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/mercury/mehg_scoping.pdf
Operating Criteria and Procedures/South Delta Improvements Program	USBR	Establish procedures to coordinate operation of the Central Valley Project and the State Water Project	Meet objectives of established water projects	NMFS BO (2009) Specifically directs DWR to halt implementation of the SDIP. No schedule for SDIP completion	Streamlined operation of the CVP and SWP could be economically beneficial		http://www.usbr.gov/mp/cvo/ocap_page.html http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm
Sacramento River Bank Protection Project	USACE	Maintain levees and reduce stream bank erosion	Enhance public safety along the Sacramento River and its tributaries	CEQA/NEPA documentation for Phase 2 in progress	Upfront cost for long-term preservation of built environment		http://www.delta.ca.gov/res/docs/meetings/2009/032609_item_11.pdf
California Water Plan	DWR	Provide a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future	Present basic data and information on CA's water resources, including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses	Working on Update 2013	Potential effects on water supply for in-Delta use.		http://www.waterplan.water.ca.gov/
Emergency Planning Project for the Five County Delta Region	DPC, OES	Coordinate emergency planning efforts throughout the Delta	Create a detailed <i>Emergency Planning Strategy Report</i> that includes input from key involved parties, and existing and planned emergency initiatives and plans.		A regional, comprehensive emergency response approach is key to the economic well-being of Delta communities – they must be and appear sustainable.		http://www.delta.ca.gov/res/docs/emergency/ER_collab_approach.pdf
West Sacramento Levee Improvement Project	USACE	Maintain and improve levees	Enhance public safety and protect property		Sound levees prevent economic loss from a flood and encourage economic investment		http://www.cityofwestsacramento.org/city/3epts./flood/
2 Gate Project	DWR, USBR	Experiment to validate a new delta smelt behavioral model and study the effects of modifying flows in the Delta to protect smelt and other sensitive aquatic species from entrainment in CVP and SWP export pumps	Modify hydrodynamic conditions to protect fish species of concern; Improve operational flexibility of the CVP and SWP	Draft EA/FONSI (2009)	Potential obstruction of navigability of waterways could interfere with recreational boating.		http://www.usbr.gov/mp/nepa/nepa_projectdetails.cfm?Project_ID=4472

Initiative	Lead Agency	Purpose	Objectives	Milestones	Economic Effects	Farmland Impacts	Resource Link
Central Valley Salmonid Recovery Plan	NMFS	Restore Central Valley populations of salmonids and stealheads	Address natural and cultural ecosystems; Restore a network of complex and interconnected habitats	Draft Plan released (2010) undergoing public comment and review			http://swr.nmfs.noaa.gov/recovery/centralvalleyplan.htm
The Delta Plan	Delta Stewardship Council	Guide State and local agencies in providing water and preserving habitat	Develop a comprehensive management plan	Initial Project Scoping (Draft Plan/EIR release expected June 2011)			
The Primary Zone Study	Delta Protection Commission	Evaluate expansion or change to the Delta Primary Zone.	Preserve viable agriculture, recreational, wildlife, and cultural resources that can be sustained into the future.	Final recommendations due Dec 2010	Expanding the Primary Zone may limit economic growth	Potential preservation of farmland	
National Heritage Area Establishment	Delta Protection Commission	Develop NHA boundaries and management plan	Make NHA that includes delta	Expected in 2010	Would provide \$20 million over 20 years to fund Delta enhancement; potential opportunity for branding and marketing the Delta		
The Great California Delta Trail System	DPC	Complete a trail from San Francisco through the Delta	Support recreation and tourism; safer access to community centers, parks, schools, neighborhoods, businesses and tourism facilities for bicyclists, pedestrians, and people with disabilities; healthier lifestyles; appreciation of the Delta heritage, and appreciation of the natural and agriculture resources of the Delta	Blue Ribbon Report for Contra Costa and Solano Counties released Sept 2010	Local districts pay to construct; may benefit from increased tourism		http://www.delta.ca.gov/trail.htm

Attachment 1: List of Delta Study Area Block Groups

Alameda County

Primary Zone None
Secondary Zone None

Contra Costa County

Primary Zone	060133010003				
Secondary Zone	060133010001	060133040002	060133071022	060133090002	060133132014
	060133010002	060133040003	060133071023	060133090003	060133132015
	060133020021	060133040004	060133071024	060133100001	060133132021
	060133020022	060133050001	060133072011	060133100002	060133132022
	060133020023	060133050002	060133072012	060133100003	060133132025
	060133020024	060133050003	060133072021	060133110001	060133141021
	060133020031	060133050004	060133072041	060133110002	060133141022
	060133020032	060133050005	060133072042	060133110003	060133141023
	060133020041	060133050006	060133072043	060133120001	
	060133020042	060133060011	060133072044	060133131011	
	060133031001	060133060012	060133072051	060133131012	
	060133031002	060133060013	060133072052	060133131013	
	060133031003	060133060014	060133072054	060133131014	
	060133031004	060133060015	060133080011	060133131021	
	060133031005	060133060021	060133080012	060133131022	
	060133032001	060133060022	060133080013	060133131032	
	060133032002	060133071011	060133080014	060133131033	
	060133032003	060133071012	060133080015	060133132011	
	060133032004	060133071013	060133080021	060133132012	
	060133040001	060133071021	060133090001	060133132013	

Sacramento County

Primary Zone	060670096051		
	060670097001		
	060670097002		
	060670097003		
	060670097004		
	060670098001		
Secondary Zone	060670040012	060670040092	060670042022
	060670040041	060670040093	060670043001
	060670040042	060670040101	060670096012
	060670040043	060670040102	
	060670040051	060670040111	
	060670040052	060670040121	
	060670040061	060670042011	
	060670040062	060670042012	
	060670040081	060670042013	
	060670040091	060670042021	

San Joaquin County

Primary Zone

060770039001

060770039002

060770040011

Secondary Zone

060770003001

060770011022

060770031102

060770032142

060770052053

060770003002

060770011023

060770031103

060770032151

060770053021

060770003003

060770011024

060770031104

060770032152

060770053022

060770003004

060770011025

060770031111

060770032153

060770053023

060770004011

060770012001

060770031112

060770033081

060770053024

060770004012

060770012002

060770031121

060770033092

060770053031

060770004013

060770012003

060770031122

060770038011

060770053032

060770004014

060770012004

060770031131

060770038012

060770053033

060770004023

060770012005

060770031132

060770038013

060770053034

060770004024

060770025011

060770031133

060770038021

060770053035

060770007003

060770025012

060770031134

060770038023

060770053051

060770007004

060770025013

060770031141

060770038034

060770053052

060770008001

060770025021

060770031142

060770040012

060770053063

060770008002

060770025022

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060770040021

060770053064

060770009001

060770025023

060770032032

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060770055002

060770011013

060770031095

060770032132

060770052034

060770011021

060770031101

060770032141

060770052051

Solano County

Primary Zone

060952533001

060952535001

Secondary Zone

None

Yolo County

Primary Zone

061130104001

061130104002

061130105062

Secondary Zone

061130101012

061130102041

061130102011

061130102042

061130102012

061130102043

061130102031

061130103001

061130102032

061130103002

061130102033

061130103003

Attachment 2: Survey of County Policies

The following section identifies land use policies for the five principal Delta counties impacting on land use within the Legal Delta. It also summarizes economic development policies, where applicable.

Land Use Policies

Urban and Rural Development Policies

Contra Costa County

- LU-3.10. The extension of urban services into agricultural areas outside the Urban Limit Line, especially growth-inducing infrastructure, shall be generally discouraged.
- LU-3.11. Urban uses shall be expanded only within an Urban Limit Line where conflicts with the agricultural economy will be minimal.
- LU-3.14. Protect prime productive agricultural land from inappropriate subdivisions.

Sacramento County

- LU-1. The County shall not provide urban services beyond the Urban Policy Area (UPA), except when the County determines the need for health and safety purposes.
- LU-13. The County will promote new urban developments within identified growth areas and prohibit land use projects which are for noncontiguous development, specifically proposals outside of the Urban Policy Area (i.e. leapfrog development).
- LU-86. Infill of existing Agricultural-Residential communities shall take precedence over expansion.

San Joaquin County

- CODP-2.1. In the Primary Zone of the Delta, General Plan and zoning residential densities shall not increase beyond a 40-acre minimum parcel size.
- AG-1.6. All lands designated for agricultural use and those lands designated for non-agricultural use but not needed for development for 10 years shall be placed in an agricultural preserve and shall be eligible for Williamson Act contracts.
- AG-1.8. To protect agricultural land, non-agricultural uses which are allowed in agricultural areas should be clustered.
- AG-1.10. Non-agricultural land uses at the edge of agricultural areas shall incorporate adequate buffers (e.g., fences and setbacks) to prevent conflicts with adjoining agricultural operations.

Solano County

- LU.P-3. Under the provisions of the Orderly Growth Initiative, a popular vote is required to redesignate Agriculture or Open Space lands to another land use category, or to increase the density of development on Agriculture or Open Space lands.
- LU.P-14. Establish rural residential development in a manner that preserves rural character and scenic qualities and protects sensitive resources including agricultural lands, creeks, native trees, open space, and views.
- LU.P-17. Encourage clustering of residential development when necessary to preserve agricultural lands and natural resource areas.
- AG.P-16. Minimize potential conflicts between agricultural and residential uses by encouraging the use of urban-agricultural buffers within city municipal services areas between residential uses and agricultural lands
- RS.P-25. Support long-term viability of commercial agriculture and discourage inappropriate development of agricultural lands within the Delta. Prohibit new industrial, commercial, and residential uses inconsistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta.
- RS.P-60. Work with cities to maintain open space separators around cities to preserve their identity and character.
- RS.P-61. Retain rural character in areas between cities by promoting agricultural uses within community separators.

Yolo County

- LU-2.3. Prohibit the division of land in an agricultural area if the division is for non-agricultural purposes and/or if the result of the division will be parcels that are infeasible for farming.
- LU-2.4. Vigorously conserve, preserve, and enhance the productivity of agricultural lands in areas outside of adopted community growth boundaries and outside of city SOIs.
- CC-1.7. Reinforce the growth boundaries for each community by through appropriate mechanisms including greenbelts, buffers, conservation easements and other community separators.
- AG-1.10. Protect agricultural lands from urban encroachment by limiting the extension of urban service facilities, particularly sewers.
- AG-6.1. Continue to promote agriculture as the primary land use in the portion of Yolo County that lies within the Primary Zone of the Delta.

Open Space/Conservation Policies

Contra Costa County

- CE 8-7. Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped areas shall be retained.
- CE 8-16. Native and/or sport fisheries shall be preserved and re-established in the streams within the County wherever possible.
- CE 8-17. The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized.
- CE 8-20. Fish, shellfish, and waterfowl management shall be considered the appropriate land use for marshes and tidelands, with recreation being allowed as a secondary use in limited locations.
- CE 8-84. Riparian resources in the Delta and along the shoreline shall be protected and enhanced.
- OS 9-28. Maintenance of the scenic waterways of the County shall be ensured through public protection of the marshes and the riparian vegetation along the shoreline of the delta levees.
- OS 9-44. As a unique resource of statewide importance, the Delta shall be developed for recreation use in accordance with the State environmental goals and policies. The recreational value of the Delta shall be protected and enhanced.

Sacramento County

- CO-63. Direct development away from prime and statewide importance soils or otherwise provide for mitigation that slows the loss of additional farmland conversion to other uses.
- CO-64. Projects resulting in the conversion of more than fifty (50) acres of prime, statewide importance, unique and local importance farmland shall be deemed to have a significant environmental effect, as defined by CEQA.
- CO-65. Recreational uses shall not be constructed on prime, statewide importance, unique or local farmland outside of the Urban Services Boundary where the use would impede agricultural practices.
- CO-71. Ensure no net loss of wetlands, stream and river corridors, riparian woodlands, oak woodlands, oak savannah, or special status species habitat acreage and their respective functions.

San Joaquin County

- OS-1.4. Areas with serious development constraints, such as the Delta, should be predominantly maintained as open space.

Solano County

- RS.P-20. Preserve and protect the natural resources of the Delta, including soils and riparian habitat.
- RS.P-26. Promote continued recreational use of the land and waters of the Delta, including fishing and boating. Ensure needed recreational facilities are constructed, maintained, and supervised.
- RS.P-72. Preserve riparian areas along county waterways to maintain water quality.

Yolo County

- CO-2.9. Protect riparian areas to maintain and balance wildlife values.
- CO-2.11. Ensure that open space buffers are provided between sensitive habitat and planned development.
- CO-2.22. Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred.

Easement Programs

Contra Costa County

- No existing agricultural/recreational easement program at this time, though the Conservation Element describes steps that may be taken to explore such programs.

Sacramento County

- AG-5. Mitigate within Sacramento County the loss of prime, statewide importance, unique and local importance farmlands or lands with intensive agricultural investments through the specific planning process and individual project entitlement requests to provide in-kind protection (must be an equal or higher farmland category), such as easements for agricultural purposes of nearby farmland.
- CO-76. Created or restored riparian habitat or wetlands, required as mitigation, shall be placed under a permanent conservation easement.
- CO-87. If land within river and stream watersheds in existing agricultural areas is developed for non-agricultural purposes, the County should actively pursue easement dedication for recreation trails within such development as a condition of approval.

San Joaquin County

- The County is currently in the process of updating its General Plan. At the time of last adoption (1992), the County did not have any agricultural easement programs in operation.

Solano County

- AG.P-4. Require farmland conversion mitigation for either of the following actions: a) a General Plan amendment that changes the designation of any land from an agricultural to nonagricultural use or b) an application for a development permit that changes the use of land from production agriculture to nonagricultural use, regardless of the General Plan designation.
- AG.P-5. Create and Agricultural Reserve Overlay designation...that identifies an agricultural mitigation bank area in which the County will encourage private landowners to voluntarily participate in agricultural conservation easements. (The bank area would serve as a repository of agricultural mitigation in-lieu fees from elsewhere in the county, as required.)
- AG.P-7. Explore and if feasible implement a voluntary transfer of development rights program to help protect agricultural resources by guiding development to more suitable areas.

Yolo County

- AG-1.6. Mitigate at a ratio no less than 1:1 the conversion of farm land and/or the conversion of land designated or zoned for agriculture to other uses.
- AG-1.16. Encourage the coordinated acquisition of agricultural conservation easements by local, State and federal agencies and private conservation organizations...to protect agriculture.
- AG-1.17. Encourage the coordinated placement of agricultural conservation easements on land most threatened by development, particularly those lands close to cities and unincorporated communities.

Right-to-Farm Ordinances

- All Delta counties have a right-to-farm ordinance that protects commercial agricultural operations from nuisance complaints.

Williamson Act

- All Delta counties actively participate in the Williamson Act in order to protect the economic viability of agricultural operations.

Economic Development Policies

Contra Costa County

- CE 8-29. Large contiguous areas of the County shall be encouraged to remain in agricultural production, as long as economically viable.

- CE 8-41. The promotion and marketing of locally grown agricultural products shall be encouraged.
- CE 8-42. The importance of the agricultural production, processing, and services industry within the County shall be recognized, and agriculture shall be integrated into the County's overall economic development programs.
- CE 8-43. The physical and service infrastructure, both public and private, that supports agriculture shall be promoted.
- CE 8-45. Efforts to ensure adequate, high quality, and fairly priced water supply to irrigated agricultural areas shall be supported.
- CE 8-48. Farm worker and farm family housing may be permitted in agricultural areas to meet the needs of locally employed transient and permanent farm workers and family farm workers.

Sacramento County

- ED-15. Support and promote a healthy and competitive agricultural industry whose products are recognized in local, national and international markets.
- ED-16. Support ongoing efforts by the agriculture community to develop high value products and new markets for goods that can support higher paying and more steady employment opportunities in the unincorporated area.
- ED-18. Support agricultural agencies, marketing cooperatives and other agricultural organizations in their efforts to research global, domestic and new markets for Sacramento County farm produce.
- ED-19. Encourage local and regional processing facilities that create high quality jobs.
- ED-20. Support improvement of regional transportation facilities, including freight and air cargo systems, to support increased hauling of raw product into the county and export of finished goods nationally and globally.
- HE-27. Ensure housing that is provided to migrant farmworkers is decent, safe, and affordable. (Related to this policy, the County has established a low-cost and expedited process for approving second units or manufactured housing in agricultural-residential areas for use by farmworkers.)

San Joaquin County

- ED-1.4. Agriculture shall continue to be recognized as an important part of the County's economy.
- ED-1.6. The County shall recognize the recreation potential of the Delta and its other waterways and shall promote recreation-based employment in the County.
- AG-1.11. Opportunities for farm-related housing which facilitates efficient agricultural operations shall be provided in agricultural areas.

- HE 3-7. The County shall strive to increase the availability of safe, sound, affordable housing for farmworkers.

Solano County

- AG.G-8. Seek to increase the value-added component of the county's agricultural economy to a level that meets or exceeds the state average.
- AG.P-9. Promote efficient management and use of agricultural water resources.
- AG.P-10. Support efforts by irrigation districts and others to expand the county's irrigated agricultural areas where appropriate.
- AG.P-12. Promote agriculture as a major county industry and support marketing efforts for Solano County-grown and value-added products and agricultural services and compatible activities.
- AG.P-14. Support and promote streamlined permit processing procedures for agriculture-related buildings on Agriculture designated parcels, including barns, farm stands, and processing plants.
- AG.P-18. Support long-term viability of commercial agricultural and discourage inappropriate development of agricultural lands within the Delta.
- AG.P-20. Protect, encourage, and provide incentives to agricultural processors that serve local/regional markets.
- AG.P-23. Support recreation and open space activities that are complementary and secondary to the primary agricultural activities on the land.
- AR.G-4. Enable the development of housing opportunities for farm families and farmworkers to ensure the continued competitiveness of Solano County agriculture.
- HE-D.2. The County will work with local farmers and stakeholders to identify appropriate sites for farmworker housing and then assist non-profit groups and stakeholders in securing funding sources, entitlements, and utility provision, if necessary.
- RS.P-24. Protect the unique character and qualities of the Primary Zone by preserving the cultural heritage and the strong agricultural base.

Yolo County

General Plan

- AG-2.3. Work proactively with regional and watershed based groups to protect and preserve Yolo County's agricultural water supply.
- AG-3.1. Establish an Agricultural District overlay designation to enhance and aggressively promote the distinctive agricultural and recreational character of unique regions within the County. Agricultural Districts shall be established in areas where agricultural business development and expansion (including industrial processing, commercial sales and agricultural tourism) will be encouraged through

the use of targeted regulatory streamlining, financial incentives, specialized marketing efforts, and other programs as may be determined to be appropriate.

- AG-3.4 Recognize and protect agricultural infrastructure, such as farm-to-market routes, water diversion and conveyance structures...and farm worker housing.
- AG-3.5 Encourage the provision of farm worker housing by streamlining permit requirements, reducing fees and requiring inclusionary housing within established communities.
- AG-3.9. Support the development of an agricultural marketing and tourism program to coordinate private and public initiatives and to integrate them with County efforts to attract business.
- AG-3.11. Adopt land use regulation for small farms that recognize the potential role such farms play in education and agricultural tourism and provide for the inclusion of such activities, while discouraging the use of farms as non-agricultural home sites.
- AG-3.14 Work with local agricultural groups to establish a unique identity for Yolo County agricultural products.
- AG-3.16. Promote agricultural innovation, including research and development, biotechnology, sustainable farm practices, agri-tourism and nontraditional agricultural operations in order to expand and improve business and marketing opportunities for those engaged in agriculture.
- ED-1.3. Encourage businesses that promote, provide services to, and support farming, with an emphasis on value-added agriculture, agri-tourism, food processing and agricultural suppliers.
- ED-4.4. Encourage ecotourism including boating, kayaking, canoeing, fishing, hunting, horseback riding, hiking, and bird watching.
- ED-4.7. Support the development of visitor-serving private businesses that retain and complement the County's rural character, such as bed and breakfast facilities, wineries and cafes, particularly within established Agricultural Districts and downtown areas.
- ED-4.14. Encourage agricultural recreation (including farm stays, dude ranches, equestrian facilities, etc.) and other types of outdoor recreation.
- ED-4.16. Support and facilitate local events that showcase Yolo County products such as wine, produce and arts and crafts.
- HO-7.1. Provide affordable housing and farmworker housing within the Clarksburg region.

County Comprehensive Economic Development Strategy

- Goal 6-1: Work for funding to keep county roads well maintained, and to limit conflicts between agriculture and commuter traffic.

- Goal 6-2: Attract new and existing processing facilities for expanding farm industries.
- Goal 6-5: Ensure land use policies and regulations that facilitate development of new agriculture and its support businesses
- Goal 7-8: Consider establishing an annual Yolo County agricultural festival around crops produced locally to promote agriculture and expand tourism.
- Project #3: Create an industrial sewer system in Clarksburg in order to promote development of wine processing facilities.

Attachment 3: Survey of City Policies

The following section inventories current land use conditions and long-range plans for urbanization and/or conservation in the nine cities in which more than 5,000 acres of land fall within the Legal Delta.

Antioch

- The portion of Antioch that falls within the Legal Delta is substantially built out with residential and commercial uses interspersed with open space. There are no agricultural uses within this zone.
- Much of the land that is not fully developed or is slated for redevelopment falls within the Secondary Zone. Several “Focused Planning Areas” or “Focus Areas” line the southern shore of the San Joaquin River, including the Rivertown/Urban Waterfront, Waterfront Employment, and State Route 4 Industrial Frontage Focus Areas.
- The Rivertown Area contains the historic heart of the city, including its commercial core and a sizeable amount of older, high-density housing. The General Plan seeks to reinforce Rivertown’s role as the vital center of the city by designating land for downtown commercial uses, limited industrial uses, and a large business park. However, the Plan calls for preserving the undeveloped character of most of the open space along the riverfront in order to protect wetlands and sensitive habitat areas and promote public access.
- The Eastern Waterfront Employment Area contains the bulk of the city’s now-obsolete heavy industrial uses. The Plan envisions redeveloping the Area for modern, employment-generating uses, some of which may exploit the fact that the corridor is rail-served. The Plan designates almost all of the East Waterfront Employment Area for either commercial or industrial uses. While a majority of the land along the San Joaquin River is designated for industrial development, a limited section in the northeastern part of the Area is designated for Marina/Support uses.
- The plan for the State Route 4 Industrial Frontage Focus Area builds on the fact that this portion of the city contains long stretches of undeveloped frontage along Highways 4 and 160. Additionally, a Union Pacific rail line runs parallel to Highway 4 and there is a proposed station within the Area. As such, the plan calls for a mix of TOD and commercial development to exploit the unique visibility/accessibility of the zone. None of the land is designated to be preserved for open space.

Brentwood

- Despite being largely located within the Secondary Zone, Brentwood is almost fully built out with urban uses. Though residences are the predominant land use, most of the vacant land within the city is designated for commercial, office, or industrial development.
- Development has occurred or is designated to occur all the way to the edges of Contra Costa County's urban limit line.
- The Brentwood Planning Area extends beyond the limit line to the south and east into unincorporated lands within the Delta under the assumption that the growth boundary may be altered to include those lands at some point within the planning period (until 2021). While the majority of those lands are designated for agricultural or open space conservation, around 2,000 acres have been designated as Urban Reserve and may be authorized for development within the planning period. Should this occur, the development of reserve lands would be governed by further specific planning efforts.

Isleton

- The City of Isleton General Plan was not available for review as of the date of publication of this document.

Lathrop

- Lathrop straddles the boundary line of the Legal Delta. Most existing development has been built east of I-5, beyond the reaches of the Secondary Zone. This area features a blend of single-family homes and industrial uses.
- The majority of the land within Lathrop and its Sphere of Influence, however, has yet to be developed. Lying to the west of the Interstate and often abutting the Primary Zone, this land is slated for urbanization. The City's General Plan breaks this land into two Sub-Plan Areas.
- Sub-Plan Area #2 encompasses the Central Lathrop Specific Plan Area, which envisions the development of a traditional town center blending residential and employment-generating uses. The Plan calls for up to 6,800 residential units and five million square feet of commercial uses in this zone.
- Sub-Plan Area #3 encompasses the nearly 6,000 acre Stewart Tract, which is interlaced with Delta waterways. The City's General Plan envisions the Area as a large-scale master-planned development that integrates recreation-oriented homes with a regional jobs center in the hopes of attracting not only residents, but also employers away from the San Francisco Bay Area. The jobs center could include up to six million square feet of office/business park uses. The southern perimeter

of the Area, which abuts Paradise Cut, is designated for habitat restoration and conservation.

- Currently, the majority of the land in Sub-Plan Areas #2 and 3 is in productive agricultural use, and would need to be converted to non-agricultural use in order to allow Lathrop's urbanization to proceed. Beyond the Sub-Plan Areas, however, the Plan calls for "exclusive agricultural zoning" and "firm City policies" prohibiting the extension of urban infrastructure.

Oakley

- Located entirely within the Legal Delta, the City of Oakley recognizes the fact that its broad frontage along Delta waterways makes it prone to flooding. While Oakley contains substantial residential development, single-family homes are largely clustered away from the shoreline, which, within the city limits, is almost entirely designated for Delta Recreation.
- The Delta Recreation designation acknowledges the value or recreational/public access to Delta waterways. As the area is prone to periodic flooding, habitat conservation uses are considered appropriate for Delta Recreation lands, while any use that requires permanent infrastructure and has the potential to attract a large concentration of people is not.
- The City has identified two sizeable Special Planning Areas along the Delta: the Cypress Corridor Planning Area and the Cypress Corridor Expansion Area. The portion of the Cypress Corridor to the south of the Contra Costa Canal is envisioned as a residential community with supporting commercial and public uses, while all of the land to the north of the Canal is designated to remain Delta Recreation. The Expansion Area—which lies outside of the city limits, but inside of the County urban limit line—includes the County-approved, 1,300-unit Cypress Lakes project. The majority of the remaining land is designated for low- and medium density residential uses, though the Area is interspersed with lands designated for light agricultural use.
- While the City's General Plan calls for development practices that minimize conflicts between urban and agricultural uses, it does not mandate the conservation of agricultural lands within the city limits.

Pittsburg

- The City of Pittsburg is substantially built out with residential, commercial, and industrial uses. Pittsburg's shoreline along Suisun Bay, which marks the perimeter of the Primary Zone, is an area of historical urban activity. The shoreline harbors not only the city's downtown, but also extensive industrial uses.

- For planning purposes, the City breaks the shoreline down into the Northwest River, Downtown, and Northeast River Subareas. While the Downtown Subarea is designated for sustained commercial and residential activity, the Northeast River Subarea is slated for industrial redevelopment. The Northwest River Subarea, which has predominantly retained its natural character as wetlands and salt marshes, is slated for preservation. Limited industrial uses, however, such as the Pittsburg Power Plant, are allowed to maintain operations on stable, reclaimed land.
- While the City of Pittsburg does not include substantial agricultural uses, it does encompass Browns Island Regional Shoreline, which is a sanctuary for migratory birds that lies within the Primary Zone. Stewarded by the East Bay Regional Parks District, Browns Island is protected from development.

Sacramento

- The portion of Sacramento that falls within the Secondary Zone is largely built out with sprawling neighborhoods of single-family homes and attendant commercial and public uses.
- This area contains one of the last holdouts of agricultural land within city limits—referred to as the Delta Shores Subarea—but the City is actively planning for its redevelopment in order to create several new residential neighborhoods structured around shopping centers and office uses. A portion of Delta Shores is designated for recreational use.
- In addition, the City is actively trying to annex the unincorporated community of Freeport, which lies to the southwest along the Sacramento River. While Freeport residents have resisted Sacramento’s attempts in the past, the City is planning for the town’s eventual annexation, nonetheless. Sacramento’s General Plan calls for preserving Freeport’s rural character and furthering its role as a quaint attraction serving Delta tourists and recreationists.
- The General Plan calls for promoting infill development within Sacramento and its Sphere of Influence while working with the County and other bodies to permanently preserve agricultural lands that lie beyond the Planning Area.

Stockton

- The portion of Stockton that falls within the Legal Delta is largely built out with a full range of urban uses, including myriad neighborhoods and substantial industrial operations clustered around the Port of Stockton.
- The City’s Sphere of Influence extends further west into the Secondary Zone and, in one area, the Primary Zone. While most of this land is currently under cultivation, Stockton’s General Plan designates it for conversion to substantial new

swaths of residential, commercial, and port uses. One segment is designated for a potential regional park.

- While the General Plan acknowledges the City's desire to preserve large tracts of agricultural land within its Planning Area, those tracts slated for agricultural use are limited to the northern and eastern edges of the City's Sphere of Influence, which fall outside of the Legal Delta.

Tracy

- Within the city limits, Tracy is largely built out. A few agricultural areas remain along the eastern and western outskirts of the city, but the City has planned for substantial commercial development in these zones. Areas slated for conversion to urban use include the Northeast Industrial Specific Plan Area and the Tracy Gateway Planned Unit Development (PUD).
- Currently occupied by scattershot industrial and agricultural uses, the Northeast Industrial Area is designated for a mixture of manufacturing, warehousing, and distribution uses.
- Similarly, the Tracy Gateway PUD, which currently consists of agricultural uses, is slated for redevelopment as 5.8 million square feet of commercial and retail uses that support not only Tracy's existing population, but also an envisioned population of some 20,000 regional commuters.
- Agriculture is currently the predominant use within the City's Sphere of Influence. However, Tracy's General Plan designates almost all agricultural lands as Urban Reserve, meaning that the City envisions their eventual conversion to urban use. Only a small portion of land to the north of the city is designated exclusively for agricultural use.

West Sacramento

- Most of West Sacramento lies within the Secondary Zone. While the city's core, which contains the Port of Sacramento, is substantially developed with heavy and water-related industrial uses, a sizeable portion of land in the city's Southport Area remains under cultivation.
- Southport is interlaced with residential neighborhoods, and the City's General Plan calls for further developing the area as a series of compact villages connected by a ring road. While the Plan designates the majority of the area for residential and commercial uses, it calls for preserving limited agricultural and recreational uses along the Sacramento River and the Deep Water Ship Channel.

Attachment 4: Other Regional Economic Development Efforts

Research for the Framework Study included a scan of other extra- and quasi-governmental economic development efforts with policies or initiatives relevant to the Delta. A programmatic survey of the Solano County Economic Development Corporation, the East Bay Economic Development Alliance, the Sacramento Area Commerce and Trade Organization, and other organizations unearthed only one relevant economic development effort. The following section provides an overview to the Rural-Urban Connections Strategy promoted by the Sacramento Area Council of Governments (SACOG).

SACOG Rural-Urban Connections Strategy (RUCS)

RUCS is an inter-jurisdictional effort led by the Sacramento Area Council of Governments (SACOG) to address issues of rural sustainability and promote strategies of economic development in both urban and rural areas that mutually support one another. Participating jurisdictions include the Counties of El Dorado, Placer, Sutter, and Yuba, as well as Sacramento and Yolo Counties, which intersect the Delta region.

RUCS is concerned with economic development opportunities and challenges in a number of topic areas that are germane to the economic sustainability of areas such as the Delta, including:

- **Land Use and Conservation.** RUCS has surveyed member jurisdictions regarding existing land use policies impacting on conversion of agricultural land to other uses, conflicts between agricultural and other uses, flood control, jobs-housing balance, and farm worker housing. As a next phase of work, RUCS will examine local and national policy innovations related to agricultural viability and rural character. Results of this study may provide valuable best practices information relevant to land use planning within the Delta.
- **Infrastructure of Agriculture.** RUCS is exploring the importance of labor supply, transportation infrastructure, and water supply to the agricultural economy. In addition it is examining factors threatening local food processing facilities. As part of this work, RUCS has put forward detailed guidelines regarding rural transportation infrastructure, intended to promote safe roads that adequately support the needs of agricultural producers.
- **Emerging Rural Economic Development Opportunities.** As consumers become increasingly interested in how and where their food is grown, RUCS has identified agri-tourism and the promotion of local markets as two key economic development opportunities for rural areas. Additionally RUCS has identified the sale of conservation

easements on agricultural land as a useful tool that contributes to farming revenue streams and enhances viability.

Subsequent work on the Delta Economic Sustainability Plan should draw on best practices and other research prepared as part of the RUCS initiative.